

A Model for Service Abroad Courses: Agricultural Development in Sierra Leone

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Abstract

Employer demand for graduates with international and cross-cultural project management experience has been steadily increasing. To meet this need, an agricultural development service abroad course was designed. University students involved in the program came from various backgrounds with limited or no international travel experience and were placed into three separate groups according to their degree field and interest; agricultural production, nutrition and economics and bio systems engineering. The goals for this course were three-fold; first, to introduce appropriate technologies into a community to improve sustainable food security for local populations; second, to place American university students within a learning environment where they were required to use their knowledge and skills to achieve an objective with limited resources; and third, to introduce American students to the challenges and opportunities in international development. Within these groups, students designed and developed projects for a local orphanage with the overall goal of demonstrating to the community how to increase living standards in a sustainable manner using local resources. American students implemented nutrition, agricultural production and water projects and worked with children from the orphanage to determine local needs to modify projects. Each group was responsible for using the platform of their project to increase the children's understanding of applied science, math and engineering concepts through experiential learning techniques. Upon returning from the trip, five of the students have continued and expanded their respective projects with a return service-abroad trip to Sierra Leone, creating a social venture working in Sierra Leone and being awarded a Fulbright Fellowship to research in Sierra Leone.

Introduction

Globalization is drawing more and more students to study abroad each year. In the last two decades, students participating in study abroad programs has tripled (IEE, 2012). The study abroad experience is viewed as valuable to many industry managers and hiring personnel (Trooboff, 2007) as more and more graduates are finding jobs in multinational and internationally focused organizations (Dwyer, 2004).

Traditionally, study abroad programs consisted primarily of stays in country longer than 8 weeks (Dwyer, 2004), but recent trends indicate that between 2009 and 2011 over 50% of study abroad students participated in programs of less than 8 weeks in duration (IEE, 2012). With this shifting towards shorter-term programs, it has been found that students are still gaining valuable skills and lessons that were previously seen as unique only to long-term programs. Recent research has indicated that students gained confidence in working in challenging and diverse cultural environments (Dwyer, 2004), developed a personal global perspective (Daneshyar, n.d.) and increased their self-confidence (Pence and Macgillivray, 2008) while working in an international context.

With \$141 billion in agricultural exports and \$102 dollars of agricultural imports in the 2012 calendar year, agriculture is not exempt from globalization for the U.S. (USDA, 2012). Agriculture students are also not exempt from the need to gain international exposure and the subsequent personal and professional benefits mentioned above. However, of the study abroad courses offered in the U.S. only 1.3% of them were focused on agriculture (IEE, 2012). Additionally, less than 6% of study abroad courses took place in Africa (IEE, 2012). With over 70% of the African population involved in agriculture (Sanchez, 2002), as well as the vast opportunity to

increase agricultural production in Africa, it is of great value to increase the number of agriculturally related study abroad courses in Africa.

Sierra Leone

Sierra Leone is a country in the western part of Sub-Saharan Africa (SSA). After an eleven yearlong civil war ended in 2002, many organizations have been actively working to increase food security while helping to rebuild infrastructure throughout the country. Over half of the working-age population takes part in subsistence agriculture (CIA, n.d.). However, indigenous knowledge of proper agriculture production techniques is lacking due to the tragedies occurring during the civil war due to entire farming communities being displaced as well as generations and their agricultural experience lost as casualties of the war. Additionally, poor infrastructure and inadequate access to education has added to food insecurity. This represented an opportunity for students learning agricultural science to use their skills and knowledge to help others improve their lives.

With this in mind, an agricultural development service abroad course was developed for students at Oklahoma State University. The objectives for this course were three-fold; first, to introduce appropriate technologies into a community to improve sustainable food security for local populations; second, to place American university students within a learning environment where they were required to use their knowledge and skills to achieve an objective with limited resources; and third, to introduce American students to the challenges and opportunities in international development.

Course Design

For a successful service abroad course, it is imperative to establish working relationships with local organizations with like-minded goals. For this course we worked with a local non-government organization (NGO) that operates an orphanage in the country's capital of Freetown. This local NGO had just acquired a large compound in the small community of Waterloo on the outskirts of Freetown that all stakeholders wished to be used for agricultural training and food production. This compound served as the location for much of the service abroad course activities. The group also worked with various U.S. based NGO's that have temporary or permanent presence in Sierra Leone. The trip was 14 days in length and took place over the student's spring break.

Nine students participated in this course with two instructors. Six graduate and three undergraduate students participated in this course, which was led by two professors experienced in agriculture projects in

Africa. The students came from diverse backgrounds, international exposure and majors.

Pre-Departure

Leading up to the experience, three group meetings were held to establish a relationship within the group as well as to determine possible project ideas. During these meetings, students and faculty who have previously worked in Sierra Leone introduced students to a brief background of Sierra Leone and it's culture. Students were given full discretion in choosing their proposed projects within the overall mission of agricultural development. After the first couple of meetings, the students began to separate into groups according to their project ideas, which seemed to be influenced by their current major. The three groups established were food production, nutrition and economics and biosystems engineering.

Students then held informal meetings with their respective groups to discuss project plans and collect necessary supplies. Students working on food production attended training for water and soil testing using low-input analytical tests while the biosystems group attended training on drilling water wells in developing countries using local supplies.

In-Country Agricultural Production

The agriculture production group made it their goal to increase food security for the orphanage by teaching them to produce their required food. To do so they taught soil testing, soil and water conservation techniques, composting and how to install and maintain drip irrigation. The OSU students taught basic science and math lessons using the project according to theories of experiential learning proposed by Kolb (1984).

Nutrition and Economics

Students in the nutrition and economics group surveyed the local and regional markets to collect samples of all available foods, evaluated market prices to determine the best location for the orphanage to purchase additional food and determined food preferences. This was carried out to insure that the food purchased was bought at the best price possible. Based on availability, cost and preference a least cost diet was created and used to assist in determining the garden contents.

Biosystems Engineering

The biosystems engineering group focused on improving the infrastructure (water, energy and sanitation needs) of the compound and worked with a U.S. based NGO to drill a well site for a local school. While the well

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was not for the orphanage, children from the orphanage worked with the group and learned basic engineering principles while giving their time to help others gain access to clean water.

Impact

While no formal surveys were distributed to students after the experience, each student was interviewed by a state-wide news program producing a brief documentary of the work being done in Sierra Leone (McClendon, 2011). In addition to these post-trip interviews, the impact of the course is evident in each of the students' continued involvement in projects in Sierra Leone as well as future career and educational endeavors.

When asked how this trip impacted them, students responded in many different ways. One student commented that he is, "now the guy who has seen the hope in Africa and tells everyone he knows about it." Another student commented that the realization that she has an unlimited variety of opportunities while the local people in Sierra Leone face few opportunities, even for the brightest, was a "life changing" experience that would propel her to be more judicious in pursuing options. Almost all students remarked about the new perspective they have found of the unique opportunity granted to them through a college education and also that they want to use this more to help others in the future.

Upon returning, nearly every student participated in the development of the next Sierra Leone service abroad course and recruited 23 students. One student created a social/business venture that attracted multiple investors in the U.S to invest \$150,000 in start-up capital. He now lives in Sierra Leone and operates one of the largest pineapple plantations in the country while providing jobs and training in sustainable agriculture production. In addition, he is continuing his education with a graduate degree in International Studies. Two other students from this course work with him and one has moved to Sierra Leone in order to help market the farm's products for export.

Another student was awarded a Fulbright Fellowship that allowed her to live in Sierra Leone for one year while studying rainwater harvesting techniques that could potentially provide clean drinking water to many in the rural parts of Sierra Leone. She also still helps in drilling wells. Another student returned to Sierra Leone four times and received a grant from the Oklahoma Conservation Society to design, build, install and monitor sand bio-filters in schools throughout Sierra Leone. She will be leading the Sierra Leone service course in 2013. From the initial sand bio-filters project during one of the Sierra Leone service courses, one of the Engineering Without Borders (EWB) students received a Wentz

research fellowship to pursue the redesign of the sand bio-filter vessel based on concepts learned from a local craftsmen and materials common in Sierra Leone. He is a finalist for the Udall Scholarship and if received will use this to further his attempts to develop these water filters from local materials in Sierra Leone.

Conclusion

Evidenced by student responses in their interviews as well as their continued action to work on projects in Sierra Leone this course indeed had a powerful impact on their world perspective and the role they can play in agricultural development. A key component of the success of this course was the student ownership and autonomy of each of the three projects selected. Not only did this facilitate great involvement in the course, it also created a lasting responsibility felt by the student to continue the project.

Recommendations for courses such as this would be structured meetings for reflection of the impact of the trip upon return. This could aid students in better understanding the experience they received and provide skills for portraying this to family, friends and other students not having similar experiences.

Literature Cited

- CIA. (n.d.). CIA World Factbook: Sierra Leone. World Factbook.
- Daneshyar, A. (n.d.). Evolution of a global perspective: Experiential learning during an education abroad program. The Peter J. Tobin College of Business, 58–75.
- Dwyer, M. 2004. Charting the impact of studying abroad. *International Educator* 13(1), 14–17.
- Education, I. of I. 2012. Open Door Fast Facts Report.
- Kolb, D.A. 1984. *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: Prentice Hall, Inc.
- McClendon, R. 2011. Show 1140: Value added- Sierra Leone reflections. *Oklahoma Horizon*.
- Pence, H.M., and I.K. Macgillivray. 2008. The Impact of an international field experience on preservice teachers. *Teaching and Teacher Education* 24, 14–25.
- Sanchez, P. 2002. Soil fertility and hunger in Africa. *Science* (5), 64–65.
- Trooboff, S. 2007. Employer attitudes toward study abroad. *Journal of Study Abroad* 17–34.
- USDA Economic Research Service. 2012. Latest U.S. agricultural trade Data. Foreign Agricultural Trade of the United State (FATUS).