

4-1-2018

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Recommended Citation

Hainline, M. S., Mayorga, B. B., Morales, S., Boren Alpízar, A. E., Ritz, R. A., & Burris, S. (2018). A Change in Perspective: Agriculturally -Based Study Abroad Experience for Nicaraguan Students. *Journal of International Agricultural and Extension Education*, 25(1), 39-50. DOI: <https://doi.org/10.5191/jiaee.2018.25104>

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Keywords

Study abroad, graphic elicitation, agriculture, youth development, 4-S

Funding Source

This article is a product of the Iowa Agriculture and Home Economics Experiment Station, Ames, Iowa, Project No. IOW03813, and sponsored by Hatch Act and State of Iowa funds

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doi: 10.5191/jiaee.2018.25104

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Introduction

The academic (i.e., language skills, problem solving, and geographical knowledge), professional (i.e., professional contacts, sense of responsibility, and future career choices), personal (i.e., personal identity, confidence, and appreciation), and intercultural (i.e., interest in culture, cultural sensitivity, and diminished ethnocentrism) competencies of students are typical areas which may be enhanced in a study abroad experience (Michigan State University, 2004).

Although positive attributes have been associated with international experiences, the need to measure the learning outcomes of students—participating in study abroad programs—is needed (Van de Berg, 2001). Gillespie (2002) indicated the need for qualitative or quantitative assessments for every study abroad program. In the present study at Texas Tech University, the effects of a four-day agricultural-based program on Nicaraguan 4-S members' academic, professional, personal, and intercultural competencies, was assessed by arts-based projective techniques and graphic elicitation. These qualitative techniques allow participants to reflect on their international experience (Gauntlett, 2007). Furthermore, arts-based projective and graphic elicitation techniques are commonly used in cross-cultural research to accommodate participants who struggle to express their thoughts verbally (Bagnoli, 2009). The students who participated were part of the Nicaraguan agricultural group, 4-S, equivalent to 4-H in the United States. Students were part of a youth organization that serves poor rural areas in Nicaragua to empower underserved children and their families. The United Nations has highlighted youth as the key to address existing world challenges and achieving the sustainable

development goals. On the other hand, most of the world youth lives in developing countries where they face challenges that may limit their growth as contributing individuals of society, such as poverty and hunger. Therefore, there is a need to support youth in developing countries to help them reach their full potential (United Nations Volunteers [UNV], 2018). A multitude of previous studies have evaluated international students' study abroad experiences in the United States (Lee & Rice, 2007; Yang, Webster, & Prosser, 2011), and many studies have assessed the impact of study abroad experiences on American Students (Czerwionka, Artamonova, & Barbosa, 2015; Mohajeri Norris & Gillespie, 2008). However, there has been a limited research focus on United States-based study abroad experiences of international students from developing countries. Lee and Rice (2007) emphasized the limited existence of literature on international students' experiences in United States host institutions.

Conceptual Framework

The use of reflection in the educational setting has been commonplace for many years. John Dewey (1958) indicated that reflective thinking “transforms confusion, ambiguity and discrepancy into illumination, definiteness and consistency” (p. 67). Moreover, reflection plays an integral role in the experiential learning process, by which an individual reflects on an experience to gain insight (Daly, 2007). Boud, Keogh, and Walker (1985) defined reflection in the educational context as the “intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations” (p. 19).

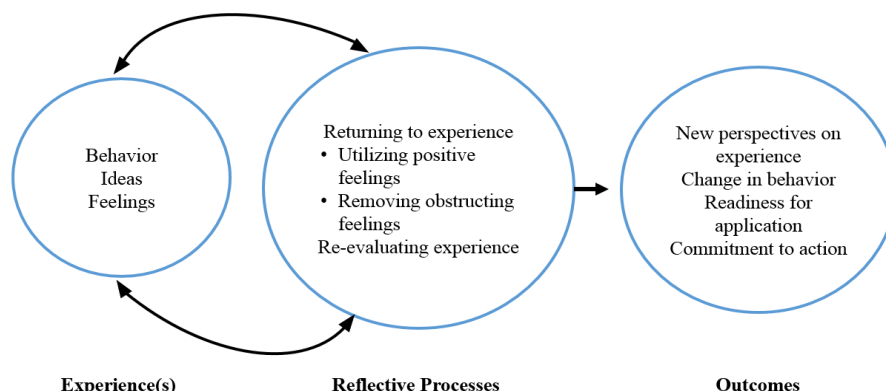


Figure 1. Model of Reflection in the Learning Process (Boud et al., 1985)

In attempt to conceptualize educational reflection, Boud et al. (1985) posited the Model of Reflection in the Learning Process, which consisted of three parts: (1) experience(s); (2) reflective process; and (3) outcomes (see Figure 1).

The first part of the model encompasses the learner's experiences, previous engagement in behaviors, and the learner's ideas and feelings they have experienced (Boud et al., 1985). In this study, major milestones were considered an important piece to explore previous experiences, ideas, and feelings. The second part of the model, reflective processes, comprises three stages: (1) cognitively recollecting the events, (2) assessing the negative and positive feelings associated with the experience, and (3) re-evaluating the experience based on previous knowledge, personal intent, and new knowledge gained from the experience (Daly, 2007). The outcomes of this reflection process could potentially involve a new perspective on learning and a decision to augment or not augment future behaviors. In the present study, the Model of Reflection in the Learning Process (Boud et al., 1985) served as a framework to conceptualize the educational experience(s) of the Nicaraguan students, their reflections on the experience(s), and served as a mean to

examine the students' new perspectives or intentions to augment behavior based on their experience.

Furthermore, this study was approach from an ontological belief through a social constructivism interpretative framework where "multiple realities are constructed through our lived experiences and interactions with other" (Creswell, 2013, p. 36). Through this approach, researchers aim to understand the participants' views of the world while considering their background, historical and cultural settings, and how their views change through time by social interactions (Creswell, 2013).

Purpose and Research Questions

The purpose of this qualitative study was to examine Nicaraguan students' perceptions of agriculture and future aspirations, before and after engaging in a four-day agricultural-based program. Four research questions guided this study:

1. What are the major life milestones perceived by Nicaraguan students?;
2. What are Nicaraguan students' perceptions of future aspirations after the international experience?;

3. How do Nicaraguan students perceive the field of agriculture?; and
4. What are Nicaraguan students' conceptualization of agriculture after the international experience?

Methods

The participants in this study were 20 Nicaraguan students, who traveled to Texas Tech University for a workshop focused on enhancing their knowledge of agricultural practices in the United States. Twelve (60%) were male and eight (40%) were female. The students' ages ranged from 12 to 21, with an average age of 17.

The design of the qualitative study was an intrinsic case study. A case study is an in-depth description and analysis of a bounded system. Some characteristics of case studies as qualitative research are: (1) searches for the meaning and understanding, (2) the researcher as the primary instrument of data collection and analysis, (3) an inductive investigation strategy, and (4) the end product is richly descriptive (Merriam, 2009). Case studies are particularistic (focus on a particular situation or phenomenon), descriptive (thick description of the phenomenon under study), and heuristic (illuminate the readers' understanding of the phenomenon) (Merriam, 2009). In this study, the unit of analysis was the Nicaraguan 4-S members, affiliated with the Fabretto, who participated in a short-term study abroad. Credibility and dependability were achieved through triangulation and peer debriefing. Based on recommendations from previous literature (Creswell, 2013; Lincoln & Guba, 1985), drawings (pre-post), short interviews, and observations were used to triangulate the study. Peer debriefing included coding of drawings and interviews by three members of the research team until achieving a level of agreement on the

interpretation of the findings. In essence, the peer debriefing served as a form of inter-rater reliability (Onwuegbuzie & Leech, 2006). Transferability of the findings to other contexts/settings was done through a thick rich description by merging drawings with interviews scripts to obtain a detailed description, providing detailed information of the methods, participants' background, and activities conducted during the study abroad experience. These rich, thick descriptions allowed the findings to be transferred to other context (Onwuegbuzie & Leech, 2006).

Students' illustrations (i.e., graphic elicitation and arts-based projective techniques) served as the means for data collection in this study. According to Bagnoli (2009), applying these drawing methods when conducting an interview can allow participants to open up to the interpretations of questions, and at the same time allow a creative way of interviewing through participants' own meanings and associations. Different levels of experience can be accessed and represented using non-linguistic dimensions, generating new ways of interrogating and understanding the social aspects of human behavior (Bagnoli, 2009). Arts-based and graphic elicitation methods allow participants to reflect on issues being explored (Gauntlett, 2007).

At the beginning of the program, students were asked to create two illustrations (in black ink): (1) their view of agriculture and (2) major milestone timelines for their lives. Over a three-day period, participants were taken to agriculturally-related tours on campus (e.g., meat lab and seed generation plant), the surrounding areas (e.g., dairy tour and humanitarian relief tour), and had a leadership field day hosted by the local 4-H chapter. At the conclusion of the program, the illustrations were returned to the students. They were given 10 minutes to

make any desired augmentations/additions (in blue ink) to their initial drawings. Then a five-minute interview was conducted with each student to inquire about their illustrations. These interviews provided a rich description of the data, which aided in the interpretation and confirmation of the findings.

Grounded theory methods were used (i.e., open coding and axial coding) to identify emerging themes in the analysis of interviews and illustrations. Interviews were conducted in Spanish. They were recorded, transcribed, and translated into English. The interviews and the text which accompanied illustrations were translated by two non-professional translators. Non-professional translators can serve as a good option if they are sociolinguistically competent in the language and are native speakers from the same country of origin as the participants (Squires, 2008). The two translators were doctoral students from Nicaragua and Honduras, had previously earned degrees from a Central American University, and Spanish is their native language. Interviews were matched to their illustration and analyzed concurrently to identify the emerging themes. Drawings were coded based on the drawing itself and the description the participant provided of the drawing during the interview. Different parts of the drawing were given codes that represented the themes that emerged. Close attention was given to the details of the drawing to make sure there was no missing information from the interview description. NVIVO[®] software was used for coding. The translators and research team independently analyzed the drawings and interviews to increase trustworthiness and reach data saturation.

Research Subjectivity Statement

It is important for researchers to position themselves in their writings, where

the researcher is conscious of potential biases that he/she may bring to the qualitative research study (Creswell, 2013). The research team had previously worked with the Nicaragua 4-S leaders on other projects, but had no previous experience with the 4-S members who participated in the workshop. Of the six-member research team, two individuals were from Central America, another member had previously lived and worked in a Latin America. The aforementioned researchers have formerly engaged in a multitude of international agricultural leadership projects in Latin America. Half of the research team was involved in the design and execution of the study abroad program and the remaining half, who were native Spanish speakers, conducted the data collection and analysis of the study. There was inherent positive view of the study abroad program and its potential positive impact in the participants' future attitudes, perceptions and behaviors towards agriculture. Conducting interviews allowed a deeper exploration of participants' experiences and interpretation of the art-based graphic elicitation. Self-conscious exploration allows the researcher to express how these experiences may potentially have shaped the findings, conclusions, and interpretations of the study (Creswell, 2013).

Results

Four themes (Perceptions of Agriculture, Strength through Unity, Aspirations, and Value of Experience) and six sub-themes (Previous Agriculture, Unity, Ripple Effect, Importance of Education, Learning New Things, and Thankfulness) emerged from interviews and drawings provided by participants. Themes represent students' reflections based on their own experiences, background, and how the study abroad provided them a unique experience.

Perceptions of Agriculture

The perceptions of agriculture theme refers to the Nicaraguan students' conceptualization of the agricultural industry, based on their knowledge, experience(s), and background in agriculture. This theme can be divided into two lenses, preconception (i.e., perceptions before attending program) and retrospective (i.e., perceptions after attending the program).

The students' initial perceptions of agriculture were related to production agriculture (e.g., plants and livestock). For example, Cristina said "in Nicaragua we see agriculture as cattle, horses, poultry, and the product we harvest, you can see grass, a corn plant, banana, horses, cows, coffee, oranges, and pineapples." The students' augmentations to their initial drawings regarding their view of agriculture included the crop diversification and agricultural technology. Figure 2 depicts the augmentation of a student perspective of agriculture and the addition of agricultural technology by illustrating a tractor (i.e., agricultural technology) with the caption "The machine to harvest product faster." This illustration reflects the participant's new perspective on the importance of efficiency in the agricultural industry.

Strength through Unity

The strength through unity theme referred to the importance of individual and collective efforts to attain a better life, country, and world for current and future generations. The name of the theme, strength through unity, was derived from a common Nicaraguan saying "la unión hace la fuerza", which means we are stronger together. Along with the participants' indications of striving for unity, they also provided illustrations and comments that pertained to their plans for bolstering their communities. Therefore, the sub-theme

ripple effect emerged—describing their intentions/motivations to transfer educational and agricultural knowledge to their family, peers, and community.

In describing the importance of unity, one participant mentioned his participation in Nicaragua 4-S club has served as a platform to unite the members of their community. Specifically, Mario said, "The most amazing thing in my life has been getting to know people, becoming friends, and having good community development." This sentiment was also shared by Jose and Benjamin, who described the importance of creating unity within their families.

Participants reflected on the shared responsibility of environmental care. Juan stated he wanted to "defend resources such as water and environment, all around the world there is waste of resources." Moreover, Juan said, "when doing a project not only focus on one thing but on diversity, we need to take into consideration that in the world there are crises, droughts, deforestation, and unnecessary animal death." As a part of environmental stewardship, participants discussed the implications of neglecting the environment and natural resources. Juan said, "Without agriculture there is not product, without product there is no food, without food we die, so it is fundamental in our lives - agriculture." The participants also took ownership in improving the conditions of their families and communities, which was also part of the sub-theme ripple effect. In describing her intentions to improve her community, Martha said "today I added that I have new expectations for the center where I study, to teach students what I learned here, also teach members of my community what I did here so they can put it into practice."



Figure 2. Illustrations of student's initial perception of agriculture (left panel) and the augmentation of agricultural technology (right panel)

Initially, Martha's illustration only included a house and a tree (in black ink), but after the program Martha added the title *vivir bien* which means to live well. Martha also added community members to her drawing, such as

friends and family members who she intends to impact upon returning to Nicaragua (see Figure 3).

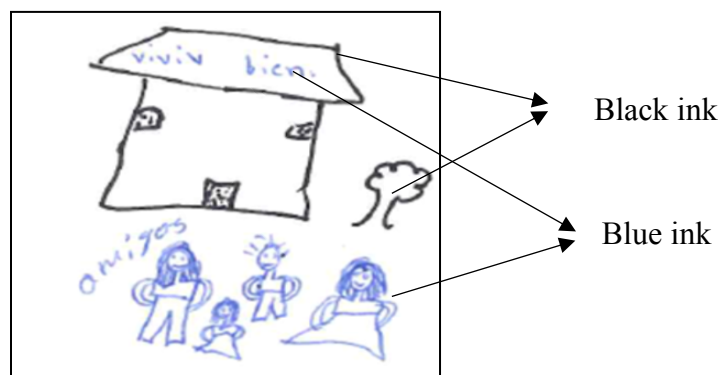


Figure 3. Student' illustration of unity (black ink = prospective; blue ink = retrospective)

Aspirations

The aspirations theme refers to the participants' future plans in general, such as having a family, and related to career goals in agriculture. The sub-theme education was closely related to their aspirations, serving as an enabling or inhibiting factor in achieving their aspirations.

Antonio mentioned, "I have in my future getting married, being a great farmer, my future is to be the owner of a farm." Benjamin indicated he was "excited about focusing on working at the farm." Many

participants offered comments regarding the importance of education. Elena said, "What I love the most is...getting the opportunity to study." In Elena's illustration of major milestones in her life, it was interesting to see how most of her comments related to educational achievements, such as "the year my mom taught me to read" and "learn more, progress in school, and get good grades" (see Figure 4). In contrast, Jairo offered a different perspective on how the lack of support from his family towards the importance education served as a limitation

to achieving his goals. Jairo reported “my parents sent me to elementary, then I had...let’s say they did not help me to continue the process...it was a challenge I had, otherwise I would be at another level of education today.” Offering a reason for the

lack of education, Abel posited, “many times [Nicaraguan students] just study elementary and quit, even though education is very very important.”

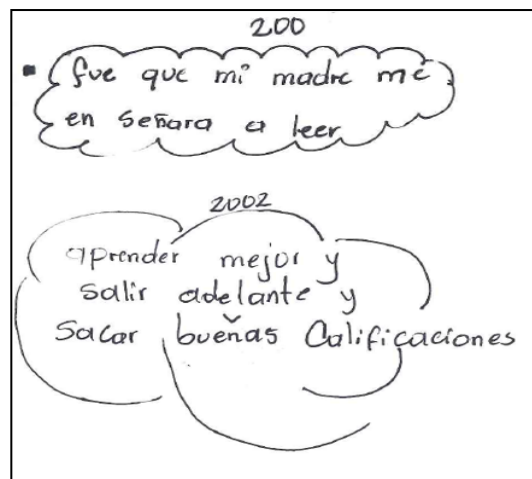


Figure 4. Student’s illustration of major educational milestones

Value of Experience

The value of experience theme refers to the participants’ perceptions of the educational value associated with the study abroad program and the appreciation they hold for the opportunity to take part in the experience. Regarding the educational value, participants reported learning about new technology and receiving personal development. For example, Nelson said, “I have learned a lot about agriculture, for example cotton, I did not know anything about that, now I know a lot, how to work with it, how long it takes to grow.” With a similar sentiment, Mario exclaimed, “I learned about corn, cotton, and livestock. We have learned a lot of things that we never learned about in Nicaragua.” Mario’s illustration depicts his initial knowledge of agriculture, which included crops such as corn, rice, beans, banana, cassava, cacao,

tomatoes, and cucumbers. Then, he augmented his view by adding crops observed and studied during the study abroad program such as wheat, cotton, and grass for animal feed (see Figure 5).

The sub-theme of thankfulness was also tied to the participants’ perceptions of the study abroad program. The participants indicated being thankful for their experience in the United States, and the unique opportunities they encountered during the program. For example, Cristina added an airplane to her drawing, and commented, “I drew an airplane, it was my first time to fly on one, and for me it was a great experience, because I never had the opportunity to do it” (see Figure 6). Moreover, Cristina added she was “very thankful and full of joy for being here, I have learned a lot.”

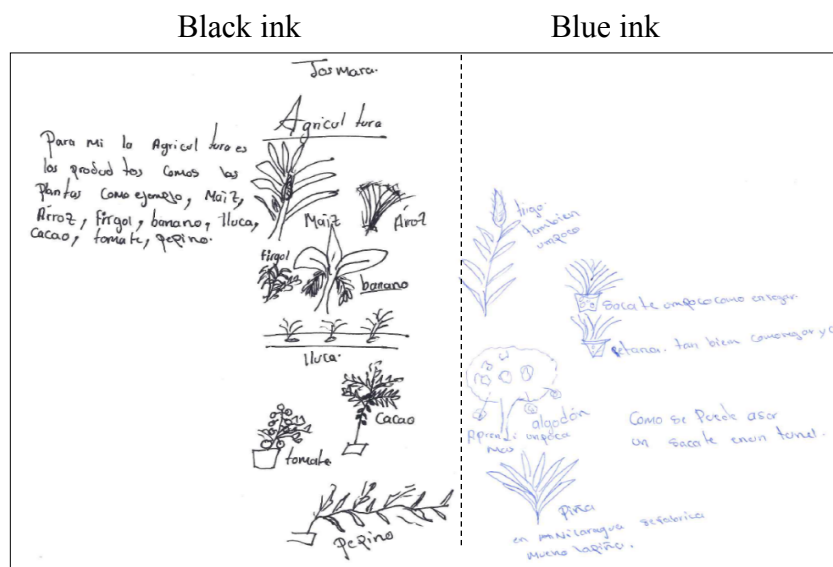


Figure 5. Drawing of exposure to new crops (black ink = prospective; blue ink = retrospective)

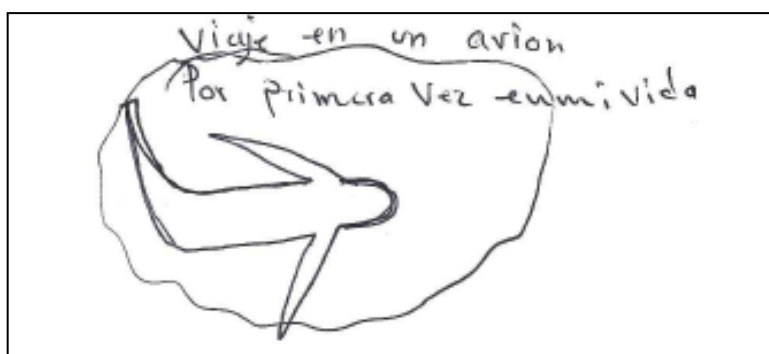


Figure 6. Student's illustration of new experience

Conclusions/ Recommendations/ Implications

Based on the students' illustrations and comments on their perceptions of agriculture, which mainly included plants and animals, it is implied that their conceptualization of agriculture was limited to their local agricultural experiences in Nicaragua. Their changes to the drawings after the program, along with comments provided in the interviews, indicated the changes to their perceptions of agriculture, due to their experience in the four-day agricultural program. The students' visits at

local agricultural entities (e.g., seed regeneration plant, dairy, and farms) seemed to have an influence on their view of the agricultural industry. In relation to the model of reflection in the learning process (Boud et al., 1985), the students' perceptions of agriculture would fall in the experience and reflective processes. Specifically, the previous perceptions of agriculture constitute their former ideas, experiences, and prior engagements related to agriculture. After evaluating their prior experiences, and participating in the program, many students reported additions and augmentations to

their perceptions of agriculture. Students' engagement in reflective processes were also observed regarding the value they associated with the learning experiences. Their previous agricultural experiences, coupled with the reflective processes of the new learning experiences, had an influence on their aspirations and desire to make meaningful changes in their communities (i.e., ripple effect). In support of this implication, Kauffmann, Marint, Weaver, and Weaver (1992) posited that study abroad experiences aid in the intellectual development of students by allowing students to change their perceptions of the host culture, their home culture, and global understanding. Moreover, agricultural development is a powerful tool for enabling economic development and reducing global poverty (The World Bank, 2012). Innovations are key to promoting agricultural development that may improve productivity, competitiveness, and enable economic growth. At the same time innovations play an important role in creating jobs, thus reducing poverty and contributing to social development (The World Bank, 2012).

The 4-S members' changes in perspective, due to their participation in the educational program, signify their engagement in reflective processes. The students' augmentations/ additions made to their drawings at the end of the program, indicate they re-evaluated their experience, based on previous experiences, personal intent, and knowledge acquired from the new experience (Daly, 2007). Although this study provided insight into the reflective processes of the Nicaraguan students, the study lacked metrics to measure changes in behavior or commitment to action.

The agriculturally-based study abroad constitutes a potential diffusion of innovation of the 4-H model and transfer of agricultural technology. During the study

abroad program, students were able to interact with 4-H members and learn more about the 4-H program, allowing students to explore aspects of compatibility of the two models. Landini (2016), highlights that Latin America as a region presents low adoption rates of innovations due to constraints in the existing extension services of the region. Generally, young and more educated farmers follow innovative agricultural practices and adopt new technologies (Chi & Yamada, 2002; De Souza, Young, & Burton, 1998; Feder & Umali, 1993). These students are likely to become future farmers that may adopt new technologies and practices in their farms facilitating the diffusion of innovations in their communities.

Students in some way were persuaded by the attributes of the agricultural technology observed, mainly by exploring the *relative advantage* of innovations, and seeing it in action through *observability* (Rogers, 2003). Subsequent studies should investigate the outcomes (e.g., commitment to action or change in behavior) of the program on the students themselves, and the 4-S students' secondary impact on their family and community members' agricultural practices.

Aside from perceptions of agriculture, this study also focused on the future aspirations (e.g., career and family) of the students. Future research is needed to determine the program's impact on the 4-S students' aspirations, will the students decide to stay on their family's farm, or choose a profession outside of agriculture? Zhai and Scheer (2002) indicated that students who study abroad develop favorable attitudes toward the country they visit, accompanied with criticisms of their home country. Will this international experience possibly enhance the Nicaraguan students' desire to pursue careers outside of the country? Will this study abroad create a

negative perspective toward their home country?

In the process of developing and implementing the agricultural program at Texas Tech University, many faculty members and students (undergraduate and graduate level) were closely engaged with the Nicaraguan students. Stephenson (1999), who studied impacts of study abroad experiences on three groups (study abroad students, host families, and university professors at hosting institutions), indicated the study abroad experience affected not only the students themselves, but also had an impact on the individuals who hosted them. Specifically, the hosts and professors indicated the program provided social and cultural benefits to them (Stephenson, 1999). Hence, it is important to understand the two-way impact of the Texas Tech University agriculturally-based program. Future Texas Tech University international programs should incorporate measures to assess the study abroad students' impact on the faculty and students involved in the program.

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