Fostering Global Mindedness in Short-Term Community-Based Global Learning Programs: The Importance of Strategic Design, Collaboration, and Reflection

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Abstract

Trends toward short-term academic service-learning abroad necessitate programs designed to maximize effectiveness and measurement of outcomes. The current study sought to strategically foster and measure increases in global mindedness during an immersive community-based global learning program abroad. University students studying either Computer Science or Spanish collaborated to design curriculum and host a technology summer camp for junior-high students in the Dominican Republic. The semester before the two-week travel experience included extensive pre-departure preparation, collaboration, reflection, and communication among students, program directors, on-site program coordinators, and stakeholders in the host community. Results of pre- and post-tests using the Global Mindedness Scale indicate perceptions of five dimensions of global mindedness (i.e., responsibility, cultural pluralism, efficacy, global centrism, and interconnectedness) were significantly increased after participating in this program. Pre-departure

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activities, curricular design, and logistical elements of the program are discussed, along with recommendations for future research.

Abstract in Spanish

Las tendencias en los estudios en el extranjero a corto plazo que incluyen el aprendizaje a través del servicio en la comunidad requieren un diseño que maximice la eficacia y medida de los resultados. Este estudio midió un crecimiento en la mentalidad sobre asuntos globales entre participantes en un programa a corto plazo en el extranjero. Estudiantes universitarios con concentraciones en informática y en lengua española colaboraron para diseñar un currículo y ofrecer un campamento tecnológico de verano para estudiantes de una escuela secundaria en la República Dominicana. El semestre antes del programa, que duró dos semanas, incluyó la preparación extensiva, la colaboración, la reflexión y la comunicación entre los estudiantes universitarios, los directores del programa, los coordinadores del programa in situ y miembros de la comunidad local. Los resultados de los cuestionarios antes y después del programa fueron creados con una escala de mentalidad global (Global Mindedness Scale), indicando percepciones en cinco dimensiones de tal mentalidad (responsabilidad, pluralismo cultural, eficacia, centrismo global e interconectividad); se concluyó que la mentalidad fue aumentada significativamente después de participar en el programa. Se examinan aquí las actividades antes del comienzo del programa, el diseño del currículo y los elementos logísticos mientras se recomiendan investigaciones posibles para estudios futuros.

Keywords:

global mindedness; community-based global learning; service-learning; short-term study abroad

Introduction

Institutions of higher education pride themselves on commitment to diversity and global consciousness. Through coursework, research projects, collaboration with faculty, internship experiences, and study abroad opportunities, students are encouraged to grow as ethical and globally minded citizens who demonstrate social responsibility and civic engagement. Students can develop a global mindset through interacting with people who speak different languages, learning to appreciate different customs, and immersing themselves in another culture. Universities can foster experiences that enhance

global competencies through strategically developed immersive experiences abroad. Service and experiential education programs have shown to effectively develop global mindedness (Brandt & Manley, 2002; Lutterman-Aguilar & Gingerich, 2002; McLaughlin & Johnson, 2006; Montrose, 2002; Pagano & Roselle, 2009). Tarrant, Rubin & Stoner (2014) state that "the highest levels of global citizenship will be associated with education abroad programs that (a) embed an experiential/field component and (b) focus on academic topics inextricably linked to citizenry" (p. 147). The present study sought to strategically foster and measure increases in global mindedness in university students during an immersive community-based global learning program abroad.

Two different populations of undergraduate students studying either Computer Science or Spanish collaborated over a semester to develop curriculum for a technology summer camp. The semester before travel included extensive pre-departure preparation, collaboration, reflection, and communication amongst students, program directors, on-site program coordinators, and stakeholders in the host community. At the end of the semester, students travelled with program directors to the Dominican Republic for two weeks to host the camp for elementary and junior high students. The primary objective of this program was to establish a symbiotic relationship between university students and members of the host community that would foster intercultural awareness and sensitivity, promote an equitable exchange of knowledge and ideas amongst people from diverse backgrounds, and ultimately increase global mindedness.

Background

Trends in Study Abroad Programs

The number of American students studying abroad has consistently increased. During the 1994-1995 academic year, approximately 84,403 American students traveled abroad, and by 2014 that number increased to 304,467. To date, one in every ten undergraduate college students study abroad, representing an annual growth of approximately 9% (Institute of International Education, 2016).

Duration of study

While the number of university students studying abroad has increased, the length of time spent abroad has decreased as students have shown greater interest in short term programs over semester or year-long programs. As of 2014, 31.9% enrolled in semester programs but only 2.9% in year-long programs, and both semester and year-long programs have seen a decrease in enrollment over time. In the same year, 16.5% of students enrolled in short term programs abroad and 38.1% in summer programs, representing an increase in both types of programs over time (Institute of International Education, 2016). Short term

study abroad programs, which are typically eight weeks or less, have increased in popularity (Kehl & Morris, 2008). Short term programs are attractive to students because they offer international study while allowing time for internships, required coursework, and familial commitments.

With trends favoring short term programs, it is important to ensure that such programs provide evidence of changes in students' behavioral patterns through action-oriented experiences encouraging reflection, critical analysis, and synthesis (Lutterman-Aguilar & Gingerich, 2002). Tarrant, Rubin and Stoner (2014) point out that academic institutions often cite the increased number of students studying abroad as evidence of increased global mindedness. However, counting the number of students abroad as sufficient for creating globally minded individuals does not provide evidence of increased global citizenship (Kehl & Morris, 2008).

Fields of study

Beyond trends toward shorter periods of time abroad, the population of students seeking experiences that develop greater global awareness has been shifting away from liberal arts toward Science, Technology, Engineering, and Math (STEM) fields. According to a report issued by the Institute of International Education (2016), in 1995 less than 13% of students studying abroad were in STEM fields, but by 2014, 22.6% of all students abroad were in STEM majors. As the technology industry has expanded and become more globalized, universities are favoring study abroad programs to prepare students for careers where interaction on international teams has become more common (Niehaus & Kurotsuch Inkelas, 2016). Although more STEM students are going abroad, the number of students abroad in the liberal arts/humanities fields decreased to 3.8% by 2014 (National Center for Education Statistics, 2015). Similarly, study abroad representation from students studying social sciences was only 17.3% in 2014, fine or applied arts declined to 6.9%, and those studying foreign languages abroad is now less than 5% (National Center for Education Statistics, 2015; Niehaus & Kurotsuch Inkelas, 2016).

Since fields traditionally associated with liberal arts have demonstrated negative growth in studying abroad, while STEM student participation has been consistently increasing, programs tailored to these changes should be considered more broadly. Programs that embed real world experiences in STEM fields can both complement the growth of STEM students abroad and perhaps help reverse the trend in other fields.

Global Mindedness

With more students participating in programs abroad for shorter periods of time and the shifting academic focus of these students toward STEM,

fresh approaches to international study might be needed, and tools for measuring global mindedness in these programs should be more consistently deployed to determine the success of programs designed to affect student change in short periods of time (McKeown, 2009; Tarrant, Rubin, & Stoner, 2014).

Global mindedness and citizenship are related constructs that encompass an individual's desire to demonstrate social responsibility (e.g., by being open to other cultures), demonstrate civic engagement (e.g., by actively participating in community and domestic issues), take responsibility for the good of people and the environment on a global level, and develop a sense of self-awareness by empathetically understanding how individuals contribute to the world (Falk, 1994; Lilley, Barker, & Harris, 2015; Morais & Ogden, 2011; Schattle, 2009; Tarrant, Rubin, & Stoner, 2014; Urry, 2000). Global citizenship has been described as a commitment to equal human dignity, respect for other cultures as part of the global community, and critical reflection of historic and modern systems of oppression, along with acknowledgments of positionality within those systems (Carter, 2001; Hartman & Kiely, 2014). Similarly, Hett (1993) defined global-mindedness as "...a worldview in which ones sees oneself as connected to the world community and feels a sense of responsibility for its members. This commitment is reflected in an individual's attitudes, beliefs and behaviors." (p.143).

Hett developed the Global-Mindedness Scale (GMS) to measure five dimensions of global mindedness: responsibility, cultural pluralism, efficacy, global centrism, and interconnectedness. The GMS has been used in many studies examining study abroad experiences. For example, Kehl and Morris (2008) used the GMS to examine differences in global mindedness between students who participated in a short-term abroad program (i.e., eight weeks or less) with students who studied abroad in a semester long program. Sutherland (2015) used the GMS to examine the relationship between global mindedness and demographic variables of high school principals and school characteristics.

Rather than focusing on international mobility as the arbiter of a learner's global mindset, Lilley, Barker, and Harris (2015) argued that one of the greatest facilitators of change for a global mindset requires leaving one's comfort zone (i.e., any disorienting situation that creates a sense of uncertainty or personal discomfort, most often through interpersonal encounters with another culture). A significant shift away from the familiar often occurs over a prolonged stay in the host country. Better design of student experiences abroad may lead to greater development of global mindedness in shorter programs. Even during longer periods of international study, Lutterman-Aguilar and Gingerich (2002) emphasize that meaning of experiences abroad are not inherent in interactions. Regardless of length of time abroad, successful programs must use principles for experiential learning, including: problem-

based content in which critical analysis and solving real-life issues constitute key components; group collaboration and peer dialogue; forming a community of learners; immersion into the diversity of people, ideas and experiences in the local host community; and the need for experiences that are mutually beneficial to both parties and facilitate some kind of positive social change.

Models for Academic Programs Abroad: Service-Learning, Fair Trade Learning, and Community-Based Global Learning

Different terminology has been used to describe academic programs in which students travel abroad to learn, interact, and exchange skills and ideas with members of international communities. Many studies have used the verbiage *service-learning* to describe such programs. However, as a model for experiential education abroad, *service-learning* has been criticized as potentially patronizing and colonizing, reinforcing ideas of power and privilege (Mitchell, 2008). The term *service-learning* may imply a group of students are traveling abroad to bestow a service to members of a community in need, which fails to incorporate elements of intercultural sensitivity, mutual respect and reciprocity, and may inherently reinforce stereotypes of hierarchies and class. Although the most common term for programs that prepare students for a study-abroad experience in which students provide or exchange skills and services with members of a community abroad is *service-learning*, this transactional verbiage may reinforce hierarchies of privilege and class and call attention to existing inequalities.

The following sections outline key ideas of several models for academic programs abroad that are frequently used interchangeably, including service-learning, fair trade learning, and community-based global learning. These models should not be confused with volunteerism. Volunteerism describes international volunteer trips—typically short term, not for academic credit, and arranged by non-profit placement organizations—in which participants temporarily assist with filling gaps in local services often related to education, health, and environmental issues (Loiseau et al., 2016; Smith, 2015). Outcomes of volunteerism vary depending on attributes related to the individual (e.g., education, employment status, and age) and the program (e.g., goals of sending and hosting organizations, cost, and recruiting policies), as well as individual capacity (e.g., skills, motivation, and prior experience) and institutional capacity (e.g. resources, training, and incentives) (Sherraden, Lough, & McBride, 2008). A primary criticism of volunteer programs is the uneven exchange between volunteers and the local community being served. While volunteers may gain work experience and a sense of self-satisfaction, communities are often burdened with hosting rotations of volunteers who presumably possess superior knowledge and skills. This imbalance can reinforce post-colonialist

relationships evidenced by the consistent flow of privileged volunteers to underdeveloped countries (Palacious, 2010; Smith, 2015).

Service-Learning

Service-learning programs constitute a method of fostering deeper engagement with the target culture and can provide meaningful experiences for participants abroad. The service-learning pedagogy is a form of experiential learning combining active learning outside the classroom, community involvement, and the academic objectives for a course (Montrose, 2015). These types of programs have demonstrated positive impacts on student participants. For example, a study by Savage and Wehman (2014) found 76% of students participating in a semester-long or short term international experiential education program believed their critical thinking skills improved through their service-learning experience, and 72% of respondents believed their experience abroad enhanced academic performance. Participants in these types of programs also demonstrated greater changes in leadership ability, self-efficacy, conflict resolution skills, and understanding of problems facing a nation. The greatest change occurred in participants' knowledge, understanding, and acceptance of different races and cultures. Furthermore, results suggest academic performance improved in areas such as content learning and application, interpersonal relationships, increased motivation, and enhanced study skills. These results are mirrored in another study in which the average GPA for students participating in service-learning study abroad increased by .1 grade points, and students were more likely to spend more than 20 hours per week studying. Service-learning participants were approximately 50% more likely to seek out faculty office hours for additional assistance and spent on average one more hour per week interacting with faculty (Astin & Sax, 1998).

Service-learning has been shown to increase civic responsibility, academic development and performance, and life skills among participants (Astin & Sax, 1998), as well as improve cognitive development in problem solving abilities, expand perspectives, improve communication skills, and increase ability to acclimate to new environments (Savage & Wehman, 2014). These studies demonstrate positive outcomes among service-learning participants and contribute to the belief that service programs are an alternative method to a traditional academic study abroad experience.

Fair Trade Learning

Fair trade learning (FTL) developed through a community-driven need to advance development through tourism in a rural Jamaican community (Hartman, 2015; Hartman, Paris, & Blache-Cohen, 2014). FTL emphasizes economic exchanges taking place and appeals to deliberate and conscious efforts toward equity in service programs. For example, study abroad programs

should prioritize a commitment to community-driven values and utilize local businesses for all aspects of the abroad experience including accommodations, transportation, excursions, and meals. In addition, academic programs should seek opportunities for reciprocity and on-the-ground strategies that produce mutuality (Crabtree, 2008; Hartman, Kiely, Boettcher, & Friedrichs, 2018). FTL standards for global campus-community partnerships have been collaboratively developed to provide guidelines for institutional program development and implementation, which include core principles, community-centered components, and student-centered components (Hartman, Kiely, Boettcher, & Friedrichs, 2018).

Core principles emphasize the importance of developing programs with goals and outcomes for the community as well as students, encouraging multidirectional exchanges to support learning opportunities for locals and facilitating a reflective experience for students to explore intercultural acceptance and personal growth as global citizens. Community-based efforts should be driven by the community, and the community should have a voice in understanding the environmental impact, economic sustainability, and resources and training necessary for ensuring an ethical experience between students and the host community.

Community-centered components focus on the collaborative exchange with community partners in order to develop equitable programs that are environmentally, economically, and socially sustainable. Key factors include preparing students and community members regarding expectations, partnership parameters, and sensitization to customs. Such preparation might include notifying local businesses and guides of large groups traveling together, including timing and duration of stay. In addition, members of the community might be involved in training and preparing visiting students in community norms and cultural practices. Finally, collaborative partnerships are based on trust and reciprocity. Programs should maintain a mindset of collaboration that values participation by host communities and the contributions of local knowledge. Community-centered components should focus on fostering multidirectional exchanges between students and members of the host community. Outcomes for the community are just as important as outcomes for the students in ensuring a sustainable partnership.

International academic service programs should be designed to encourage students to interact with people in the host community to maximize gains in cultural understanding; however, students need to be prepared for this interaction to optimize its impact. Robust learning in global academic experiences should include pre-departure and in-field training that equips students with the tools needed to enhance field learning. Before, during, and after the program, program leaders should foster systematic reflection to

connect program components with goals related to the course, global mindedness, and intercultural learning. In addition, programs should be designed to improve communication skills in second languages.

Community-Based Global Learning

Community-based global learning (CBGL) is a model for study-abroad programs that seeks to identify the important role academic programs abroad can play in fostering a mutual exchange of resources, skills, knowledge, and global experiences between members of a host community and participants from visiting institutions (e.g., college students and faculty). CBGL has been defined by Hartman, Kiely, Boettcher, and Friedrichs (2018; pg. 21) as:

> "…a community-driven learning and/or service experience that employs structured, critically-reflective practice to better understand global citizenship, positionality, power, structure, and social responsibility in a global context. It is a learning methodology *and* a community-driven development philosophy that cultivates a critically reflective disposition among all participants."

The CBGL model comprises seven components: 1) community driven learning and/or service, 2) development of cultural humility, 3) seeking global citizenship, 4) continuous and diverse forms of critically reflective practice, and 5) ongoing attention to power, privilege, and positionality throughout programming and coursework. These five factors should be carefully integrated and facilitated to ensure 6) deliberate and demonstrable learning within 7) safe, transparent, and well-managed programs. The primary distinction between long-standing models of service-learning and CBGL is the focus on strategic critical reflection amongst participants as opposed to solely focusing on the "service" being provided to the international community. CBGL emphasizes a "sandwich model" approach, involving academic preparation and processing before and after an immersive intercultural academic travel experience, combined with critical reflection. Such reflection must be connected to academic assignments related to the program and should challenge students to reflect deeply, contextualized in the community experience and broader social issues, and continuously occur before, during, and after the service experience (Hartman, Kiely, Boettcher, & Friedrichs, 2018).

Summary

Service-learning, fair trade learning, and community-based global learning all focus on aspects of academic programs, typically international, that seek to provide students with an immersive global experience through partnerships with international communities. Goals of such programs include strategically fostering authentic engagement and equitable reciprocity with

members of the host community through some form of experiential project and working toward beneficial outcomes for the students as well as members of the host community. In addition, CBGL emphasizes the importance of critical reflection to better understand dynamics of power and social responsibility that may otherwise go overlooked in such academic experiences abroad. Critical service-learning and strategically fostered reflective academic experiences (Ash & Clayton, 2009; Kiely, 2005; Mitchell, 2008) allow for a deeper level of engagement and understanding of other cultures.

Digital Divide

Global education should address a real-life problem (Lutterman-Agular & Gingerich, 2002) and focus on academic topics inherently linked to global citizenry (Tarrant, Rubin, & Stoner, 2014). STEM students might be motivated to become active global participants by using technical skills in a real-world context. Furthermore, students of foreign languages might be more intrinsically motivated to study language when it is used to address a current issue that reaches outside of traditional liberal arts topics and tackles international problems requiring an interdisciplinary approach. The digital divide provides a fertile subject to cultivate the global mindset.

The digital divide refers to socio-economic inequalities between people who have access to information technology (e.g., computers and Internet access) and those who lack such resources (Santosh, 2013). Long standing structural characteristics of developing nations contribute to the inequality of access to and adoption of technology, including income distribution, education, employment, geography, age, gender, and ethnicity (Cullen, 2001; Hilbert, 2010). In an era in which Internet access and digital literacy are critical to professional success, people who lack access to technology resources and education find themselves at a disadvantage. Developed nations have far greater access to information and communication technologies (ICTs) than developing nations. For example, in developed nations, 72% of the population has access to ICTs, while ICTs are only available to 21% of the population of developing countries (Acilar, 2011). Access to ICTs has been shown to contribute to increases in living standards, economic prosperity, healthcare service effectiveness, and education for developed nations (World Bank, 2002).

Those who lack access to technology and education will continue to be at a disadvantage. Initiatives to break down the digital divide can have lasting impacts on individuals and communities, promoting economic equality and growth, social mobility, and improvements in digital literacy. Tarrant, Rubin, & Stoner (2014) call for short term abroad programs that focus on particular academic topics linked to global issues. The digital divide provides an ideal academic topic to link to global citizenry, particularly when attempting to foster

global mindedness and critical thinking. However, despite the fundamental benefits of the subject, it involves the inherit risk of serving as a reminder of the divide between the privileged and underprivileged. For this reason, best practices that promote careful pre-departure preparation, structures of social reciprocity, and systematic reflection remain essential elements of programmatic design.

Current Study

Educational initiatives that foster global mindedness through international education are increasingly relevant, as are methods for measuring the outcomes of such programs (Schattle, 2009). Schuerholz-Lehr (2007) called for more studies examining the impact of studying in another country on cultural sensitivity and competence as well as the important role university faculty and administration play in developing and promoting opportunities for international education. Previous studies point to key components in the development of global mindedness. For example, programs that encourage students to interact socially with a wide variety of speakers and that infuse elements of social responsibility, problem solving, and specific academic disciplines into these experiences should result in greater gains. Programs that provide a high degree of interpersonal interaction between students and members of the target culture, as well as programs that empower students to collaborate around particular global problems, might constitute strong models for short-term programs. In short, programs designed to allow students to apply knowledge from major fields of study to help others through a highly interactive exchange may yield maximum increases in global mindedness.

The current study empirically addresses these challenges through a two-week program which included extensive pre-departure collaboration and reflection. University students studying either Computer Science or Spanish collaborated to provide a technology summer camp for elementary and junior-high students in the Dominican Republic. Pre- and post-test data using the Global Mindedness Scale (Hett, 1993) examined shifts in university students' perceptions of global mindedness. Based on the literature, the current study focused on answering the following research questions:

Research Question: What impact do immersive short term community-based global learning programs abroad have on perceptions of global mindedness? Can global mindedness, as measured through a pre-post-test design using the Global Mindedness Scale, be increased in two weeks when combined with strategic pre-departure planning, critical reflection, and collaboration with the host community?

Method

Participants

Data were gathered from 48 American university students, including 22 males (46%), 25 females (52%), and one student who identified gender as "other" (2%). The sample included participants from two different majors. Thirty-one students declared a major in Computer Science or related technology field (65%), and 17 different students studied Spanish (35%). Participants included 11 freshman (23%), 26 sophomores (54%), 9 juniors (19%), and 2 seniors (4%). Regarding ethnicity, 41 students identified as White/Caucasian (85.5%), 5 identified as Latino/Hispanic/Chicano (10.5%), and 2 students identified as Other/Multiracial (4%).

Measurement

Hett's (1993) Global Mindedness Scale (GMS) was used to assess the impact of this program on students' perceptions of global mindedness. The GMS was selected for this study because the sub-constructs and items were closely aligned with the goals of the program. In addition, no administrative fees were incurred per student which was essential as this program operates without funding from a grant. Participants completed a survey questionnaire at the beginning of the pre-departure planning phase, early in the semester leading up to the program abroad, and then again after completing the two-week program. The GMS is comprised of 30 Likert-format scale items (1 = *strongly disagree*, 2 = *Disagree*, 3 = *Unsure*, 4 = *Agree*, 5 = *Strongly Agree*) that assess self-perceptions of five dimensions of global mindedness: responsibility, cultural pluralism, efficacy, global centrism, and interconnectedness.

Seven items were used to measure *responsibility*, defined as having deep personal concern for people in all parts of the world which surfaces as a sense of moral responsibility to try and improve conditions in some way. Sample items include "When I see the condition some people in the world live in, I feel a responsibility to do something about it" and "Americans have a moral obligation to share their wealth with the less fortunate people of the world." The Cronbach alpha coefficient for these seven items was α = .84.

Eight items were used to measure *cultural pluralism*, defined as having an appreciation of the diversity of cultures in the world and a belief that all have something of value to offer. This is accompanied by taking pleasure in exploring and trying to understand other cultural frameworks. Sample items include "The United States is enriched by the fact that it is comprised of many people from different cultures and countries" and "I generally find it stimulating to spend an

evening talking with people from another culture." The Cronbach alpha coefficient for these eight items was α = .81.

Five items were used to measure *efficacy,* defined as the belief that an individual's actions can make a difference and that involvement in national and international issues is important. Sample items include "It is very important to me to choose a career in which I can have a positive effect on the quality of life for future generations" and "I am able to affect what happens on a global level by what I do in my own community." The Cronbach alpha coefficient for these five items was α = .82.

Five items were used to measure *global centrism*, defined as thinking about what is good for the global community, not just what will benefit one's own country, and a willingness to make judgments based on global, not ethnocentric, standards. Sample items include "The needs of the United States must continue to be our highest priority in negotiating with other countries" and "I sometimes feel irritated with people from other countries because they don't understand how we do things here." The Cronbach alpha coefficient for these five items was α = .81.

Five items were used to measure *interconnectedness*, defined as an awareness and appreciation of the interrelatedness of all peoples and nations, which results in a sense of global belonging or kinship with the human family. Sample items include "I feel a strong kinship with the worldwide human family" and "I think of myself, not only as a citizen of my country but also as a citizen of the world." The Cronbach alpha coefficient for these five items was α = .68.

Procedure

This program was developed as an immersive community-based global learning experience for students involving extensive pre-departure preparation, including coordinating with on-site program coordinators and additional members of the host community (e.g., school directors, teachers, leaders of after-school programs, parents, and students), the program developers, and the undergraduate students. The program developers previously traveled to the host country (i.e., Dominican Republic) to spend time with members of the community to determine what type of program would best suit the needs of the community while simultaneously providing an immersive intercultural and academic experience for two populations of undergraduate students, utilizing and further developing their skill sets in a new environment. Prior to traveling to the host country, students met regularly with the program leaders to discuss issues related to the digital divide. The students then collaborated to create a technology-based camp curriculum which introduced computing concepts such as hardware, software, coding, robotics, circuitry, and virtual reality. The curriculum was driven by needs previously identified by members of the host

community, and an iterative exchange was maintained throughout the curriculum development phase between students and members of the host community. Students were tasked with anticipating cultural, linguistic, and logistical barriers that would require modification of the model. Students then traveled to the Dominican Republic for two weeks to host the camp in local schools with limited access to technology resources.

This program was developed so that the knowledge, expertise, and motivations of each population would complement the other. Spanish students provided the linguistic skills and cultural insights necessary to develop meaningful materials for campers and run the technology camp, while Computer Science students offered STEM expertise and technical support for the camp activities. The driving principal of the joint initiative was to design a meaningful framework in which both populations of students achieved their primary learning outcomes in the same program. For Spanish students, this included language development along with increased intercultural competency; Computer Science students gained valuable experience working with technology in environments with less than optimal infrastructure while also developing intercultural awareness and sensitivity. Outcomes for the community members and camp attendees were identified through an extensive collaboration spanning several years and played an important role in the development and implementation of the curriculum for the camp.

Pre-program curriculum design, reflection, and collaboration with host community

Pre-program curriculum design

Working together over a semester, both Spanish and Computer Science students developed a STEM summer camp curriculum for children 10 to 13 years of age. Starting in February (early in the winter semester) content for the camp was divided into stations and a team was assigned to develop curriculum and activities for each station. Teams consisted of both Spanish and Computer Science students. The program directors carefully chose the participants of each team based on factors such as technical proficiency (for Computer Science students) and language proficiency levels for Spanish students, which were evaluated through informal interviews. Each team had several students with high levels of technical proficiency, and students with high levels of Spanish language skills, along with students of lower levels. The composition of the teams allowed for those with higher levels of proficiency to assist those with lower levels so that gains in knowledge would result through collaboration. During weekly pre-departure meetings, teams researched technologies and created lessons and activities for two week-long camps that included a culminating activity at the end of each week. Teams collaborated all semester to

brainstorm ideas for activities, develop materials in Spanish, practice explanations, and build models and simulations for the camp. Spanish students regularly presented ideas and materials for instructor and peer feedback.

Pre-program reflection

In addition to pre-departure meetings to design the structure and curriculum of the camp, students met regularly with program directors to guide reflection on better understanding community-based global learning and dissect students' assumptions about the global dynamics of power and privilege. Students were introduced to cultural and historical aspects of the Dominican Republic long before traveling abroad through discussions based on a book, *In the Time of Butterflies* (Alvarez, 1994). This historical fiction novel framed conversations and facilitated discussions about the history, culture, language, and economic background of the region and aided in addressing and breaking down stereotypes.

Pre-program collaboration with host community

The development of this program adheres to key aspects of the Amizade Pedagogical Model (Hartman & Chaire, 2014), focusing on immersive academic service experiences that are community-driven, incorporate critically reflective practices, and seek to develop global citizens. These types of programs, which are inherently resource intensive, involve collaboration with on-site coordinators who handle local logistics, knowledge, and lectures, as well as faculty members who bring expertise in a particular content area and familiarity regarding university learning processes (in this case, faculty members specializing in Technology and Spanish).

School partnerships on the island were carefully selected and developed due to basic requirements for capabilities of the location hosting the camp (e.g., electricity and appropriate space for facilitating the camp were fundamental requirements), educational achievement and motivation of camp attendees, gender and age of camp participants, enthusiasm and support of school directors and parents toward the program, and the social impact on the community. Prior to program implementation, the program developers traveled to the host country to meet with program coordinators who provided access and introductions to members of the host community. Some programs utilize companies or services for developing community relationships to assist with facilitating logistics; however, in this case, relationships with on-site coordinators were previously established by the program directors. The on-site coordinators provided invaluable help with many aspects of setting up logistics on the ground, such as introductions to school directors and members of the

community who became part of the network of this program, hotels, restaurants, excursion guides, and transportation services for the students.

The ideal format for the program was determined collaboratively by the program developers, on-site coordinators, on-site school directors, and other members of the community who had a vested interested in the success of the program for the attendees. The technology camp—a one-week program implemented for two consecutive weeks at different locations, and with different populations of attendees—was held in different locations and multiple schools and community organizations participated by sending camp attendees.

On-location program procedure: hosting the camp

The curriculum and learning objectives for the camp, which were developed collaboratively with members of the host community, followed guidelines provided by the Report of the Association for Computing Machinery Task Force Curriculum Committee (Tucker et al., 2003), which outlines a model curriculum for teaching Computer Science in K-12 classrooms. Sample learning objectives from the ACM embedded in the camp curriculum include: using technology for problem solving and communication; using multimedia to support learning; using computers for directed and independent learning; using technology tools for individual and collaborative activities; using technology to design develop, publish, and present products (e.g., Webpages and videos); and working collaboratively with teachers and peers. The camp started with introductions, an overview of learning goals, and the technologies being used. Following the self-organized learning environment (SOLE) method (School in the Cloud, 2017), camp attendees were divided into small groups and rotated between activity stations led jointly by the Spanish and Computer Science students. The small groups were given a task and technology to work with at each station, necessitating campers interact and collaborate.

Camp attendees participated in three stations per day, each focusing on a different technology with a daily and weekly goal. For example, daily goals of a Lego Mindstorm station included learning to program the robot to carry out functions such as move an arm or complete a task using a sensor. At the end of the camp, the groups competed in a series of challenges using the robots including an obstacle course and a dance competition. In another group, camp attendees learned to assemble a Raspberry Pi computer and accomplish a variety of programming tasks using Scratch, a multi-lingual programming language developed at Massachusetts Institute of Technology. At the end of the camp, groups competed for prizes by assembling a Raspberry Pi and completing programming challenges, as well as displaying stories and animations created using Scratch. Using Android XO Tablets, camp attendees learned about engineering concepts using software applications, built bridges out of physical

materials (e.g., popsicle sticks), and tested designs during the Lego Mindstorm obstacle course race.

The programmatic design of the course purposefully encouraged close collaboration and team building strategies prior to departure. The university students knew each other well prior to the program commencement and had grown accustomed to working together. On site, there was a high degree of interaction each day between the Dominican camp attendees and the university students, both formally and informally, as participants conversed and collaborated during activities, scheduled breaks, and before and after camp.

On-location program procedure: intercultural education and reflection

In addition to preparing and hosting a technology summer camp, the undergraduate students participated in structured activities outside of camp time. Some activities were designed to be recreational, providing the students with much needed down time. Other activities were strategically designed to provide students a holistic appreciation of the island and the host community, including understanding modern historical elements, political structures, as well as economic, social, and cultural influences. For example, one of the on-site program coordinators—a native to the host community—delivered a series of lectures about historical forces that changed the landscape of the island during World War II, spanning the era of the Trujillo dictatorship through modern day Dominican Republic. This culminated in a trip to a Jewish museum established to honor the Jews who escaped Europe and immigrated to the Dominican Republic during and after the war. On-site coordinators collaborated with program directors and local business owners to discuss the role tourism plays in the local economy, including the important role bilingualism and technology play. This included a team-based scavenger hunt around town designed to foster interactions with members of the local community. The students were also taken on a tour of a local rum factory and received a lesson in historical aspects of the rum trade in the Caribbean and the current role rum production plays in the local economy.

Students participated in regular meetings with program leaders to reflect on the camp (e.g., to discuss aspects that went well, areas in need of improvement, interpersonal interactions with attendees and members of the community, gain assistance with technology or language barriers, and otherwise debrief about their experiences and feelings about the program). Numerous sessions for critical reflection with the students were incorporated. This aspect was deemed highly important for this type of immersive experience. Critical reflection, defined as, "...the intentional consideration of an experience in light of particular learning objectives" is a crucial element of the CBGL model

(Hartman, Kiely, Boettcher, & Friedrichs, 2018, pg. 63) and is essential to service learning programs for fostering a global perspective and promoting intercultural understanding and cross-cultural communication skills (Braskamp, Braskamp, & Merrill, 2009; McAllister, Whiteford, Hill, Thomas, & Fitzgerald, 2006). Without critical reflection, service-learning can lead to reinforced stereotypes, simplistic solutions to complex problems, and inaccurate generalizations (Whitney & Clayton, 2011). At the conclusion of the program, students wrote reflective papers about how to improve on their own experiences and the camp in the future.

Results

Support was found for the Research Question, which examined whether participants would demonstrate a statistically significant difference in global mindedness after completion of this program. Data were analyzed using paired sample t-tests to examine whether the Global Mindedness Scale (GMS) pre- and post-tests yielded significantly different responses. Reverse-worded items were recoded for analysis. Taken as a whole construct, participants reported a statistically significant difference in their self-perception of *global mindedness* after participating in this program (M = 3.90; SD = .51) as compared to before the program (M = 3.62; SD = .58), $t(45) = -5.29$, $p < .001$. The Cohen's *d* effect size, which is a measure of the importance of the statistically significant difference, is .77.

Results were then analyzed for each of the five sub-constructs of the GMS. Participants reported a statistically significant difference in their self-perception of *responsibility* after participating in this program (M = 3.80; SD = .70) as compared to before the program (M = 3.55; SD = .72), $t(45) = -3.78$, $p < .001$. Cohen's *d* effect size for *responsibility* is .56. Participants reported a statistically significant difference in their self-perception of *cultural pluralism* after participating in this program (M = 4.39; SD = .42) as compared to before the program (M = 4.10; SD = .54), $t(46) = -4.37$, $p < .001$. Cohen's *d* effect size for *cultural pluralism* is .65. Participants reported a statistically significant difference in their self-perception of *efficacy* after participating in this program (M = 3.91; SD = .70) as compared to before the program (M = 3.60; SD = .75), $t(46) = -3.55$, $p < .01$. Cohen's *d* effect size for *efficacy* is .52. Participants reported a statistically significant difference in their self-perception of *global centrism* after participating in this program (M = 3.43; SD = .70) as compared to before the program (M = 3.26; SD = .74), $t(46) = -2.36$, $p < .05$. Cohen's *d* effect size for *global centrism* is .35. Participants reported a statistically significant difference in their self-perception of *interconnectedness* after participating in this program (M = 3.99; SD = .65) as compared to before the program (M = 3.63;

SD = .66), $t(46)$ = -4.18, p < .001. Cohen's d effect size for *interconnectedness* is .62. Table 1 presents a summary of these t-test results.

Table 1. Pre-Post Differences for Global Mindedness

	Pre-test M(SD)	Post-test M(SD)	t value	p
Global Mindedness	3.62(.58)	3.90(.51)	-5.29	.000
Responsibility	3.55(.72)	3.80(.70)	-3.78	.000
Cultural Pluralism	4.10(.54)	4.39(.42)	-4.37	.000
Efficacy	3.60(.75)	3.91(.70)	-3.55	.001
Global Centrism	3.26(.74)	3.43(.70)	-2.36	.022
Interconnectedness	3.63(.66)	3.99(.65)	-4.18	.000

Discussion

The global mindedness and citizenship constructs include concepts such as participation in community issues, openness to other cultures, commitment to equal human dignity, a mindset of global responsibility, and critical reflection of systems of power and privilege (Carter, 2001; Falk, 1994; Hartman & Kiely, 2014; Hett, 1993; Lilley, Barker, & Harris, 2015; Morais & Ogden, 2011; Schattle, 2009; Tarrant, Rubin, & Stoner, 2014; Urry, 2000). The current study set out to maximize increases in global mindedness in university students through strategically designed pre-departure collaboration and reflection activities, followed by an immersive two-week community-based global learning program abroad that incorporated on-site education, partnerships with members of the host community, and critical reflection. Results of pre-post-test analyses demonstrated a statistically significant increase in perceptions of five dimensions of global mindedness after completion of this program. A number of factors likely contributed to this positive change.

The methodology implemented in the current study is aligned with recommendations that academic service-learning experiences focus on differentiated instruction, allowing for student-centered planning and execution of tasks requiring structured interaction with members of other cultures (Allen, 2010). Previous studies have emphasized the importance of focusing on real world problem-based content for models of global education seeking to foster global mindedness (e.g., Lutterman-Aguilar & Gingerich, 2002; Tarrant, Rubin, & Stoner, 2014). This program enabled university students from different academic disciplines to better understand issues related to the digital divide and collaboratively develop solutions that consider challenges and opportunities in the host country.

Methods for facilitating multidirectional exchanges carried throughout the program as its design highlighted interconnectedness through mutual dependence as students collaborated in an environment that allowed them to appreciate and understand the strengths of each other's knowledge. Students studying Spanish had the opportunity to strengthen their language proficiency and also developed technological competencies they might not have otherwise gained through their academic major. Likewise, students studying Computer Science applied their skills in a new environment with limited resources, increased their second language proficiency as they interacted with the Dominican community, and gained an appreciation for the challenging role the students studying Spanish assumed as interlocutors. As such, the program design lends itself to the promotion of self-efficacy across groups of students from different academic disciplines. This approach may be a valuable step toward improving the curricula of short-term study abroad experiences and in maximizing participants' participation in communities abroad.

Good program design should consider the outcomes for both the students and the host community from the beginning. In the current program, student outcomes included academic learning, intercultural learning, developing interpersonal skills, advancing language and technical skills, and ultimately increasing global mindedness. The student outcomes were achieved through a carefully planned preparation phase followed by an immersive experience in which students interacted with members of the host community and participated in a continual loop of reflection and programmatic improvement. Community outcomes were identified by collaborating with local liaisons to identify partners and facilitate consistent communication with the host community to build trust, mutual reciprocity, and lasting relationships.

The *sandwich model* proposes extensive critical reflection activities before and after any CBGL program (Hartman, Kiely, Boettcher, & Friedrichs, 2018). In this program students spent over three months preparing curriculum, sharing their work with their peers and instructors, and improving on their ideas throughout. The pre-departure reflective practices gave students time to identify their own gaps in knowledge and improve on their designs. During the immersion, evening debriefings among the teams continued the feedback loop and led to changes in the next day's camp as students shared those aspects went poorly or well. At the conclusion of the program, students wrote reflective papers about how to improve on their own experiences and the camp in the future. Critical reflection, therefore, occurred throughout all stages of the program.

The results in this study can therefore be understood through the lens of community-based global learning research, which emphasizes the importance of fostering equitable community partnerships, as well as opportunities for

students to engage in critical reflection regarding power, privilege, cultural humility, and global citizenship (Hartman, Kiely, Boettcher, & Friedrichs, 2018). This program intentionally incorporated extensive interactivity and collaboration between students, program directors, on-site program coordinators, members of the host community, and the camp attendees. Aside from curriculum planning, students were regularly engaged in reflective activities prior to departure. Pre-departure reflection focused on understanding the challenges of access to digital technologies and collaborating with members of the host community to develop solutions that met their needs. In this way, students were guided away from making assumptions and creating misguided solutions, and instead focused on developing empathy and interconnectedness with the host community.

In sum, the depth and effectiveness of the learning process are dependent on the quality of interactions students have with learning partners in critically analyzing real-life problems and collaboratively developing solutions, and how prepared students are to develop relationships and engage in meaningful collaborations that are mutually beneficial and facilitate some kind of positive social change (Allen, 2010; Lutterman-Aguilar & Gingerich, 2002). Immersive community-based global learning experiences provide an opportunity for students to see themselves and their world in a different light. The key takeaways from this study relate to the importance of how strategic program design can facilitate active and iterative communication between members of institutions providing these types of immersive experiences for university students and members of the host community who better understand the needs of the community. Programs designed to foster this equitable, reciprocal collaboration can have a positive impact on the host communities while simultaneously fostering increases in global mindedness in the university students. Landorf and Doscher (2015) suggested global learning is a process whereby a group of diverse people collaborate to analyze and address complex problems that transcend borders. Due to the task-based approach, intensive preparation, extensive contact with members of the host community, and incorporation of guided critical reflection, university students became highly invested in the outcomes of the program they assisted in developing, making the work more personally meaningful. Considering these factors, increases in global mindedness should not be surprising.

Limitations and Future Research

The fundamental components of this program that most likely influenced successful outcomes include focusing on a global issue (i.e., the digital divide), fostering collaborative project-based learning and critical reflection both prior to and during travel abroad between students and

members of the host community, empowering students to assume leadership roles and take ownership of camp curriculum, and immersion in a non-English speaking environment with a population of different cultural and socio-economic backgrounds while creating an environment of social and intellectual reciprocity. Layers of complexity involving teamwork between different student populations, work in a second language, and significant time devoted to program and curriculum development clearly exist and rely on careful coordination with institutions in the host country. Given the multifaceted nature of this program, identifying the essential elements that contribute to global mindedness might make it easier to replicate at other institutions. Studies examining additional subject matter, different combinations of disciplines, varying lengths and scope, and that have a more diverse set of student backgrounds would also contribute to a clearer understanding of core components of this approach to a globally-minded educational experience.

Short term programs abroad have been shown to have a positive impact on students (Mapp, 2012). Additional methods for assessing the degree to which the positive impacts of service programs abroad might be temporary or long-lasting seem warranted. For example, effects may be experienced more strongly immediately after an experience like this but may diminish over time. Future research is needed to longitudinally examine how additional opportunities to develop global mindedness and cross-cultural competencies might sustain the impacts, although longitudinal studies are notably difficult to carry out given the time and resources needed to locate and follow up with participants. Hartman, Kiely, Boettcher, and Friedrichs (2018) suggested the *sandwich model*, whereby students engage in extensive critical reflection activities before, during, and after a program. Further attention to post-program reflective activities may indeed increase the positive impact such programs have on outcomes such as global mindedness. In the case of the current study, critical reflection was an important component before and during the abroad experience but was not feasible for long after the program concluded as students moved on to summer jobs, internships, and other activities. Finally, qualitative assessments could also help in understanding the shifts taking place in terms of developing global mindedness through service-learning experiences abroad, as well as additional measurement tools beyond student reports of self-perception.

Academic study abroad experiences have been shown to have a significant impact on many areas of life, including choices in education, career choices, linguistic growth, and personal growth (DeGraaf, Slagter, Larsen, & Ditta, 2013; Garbati & Rothschild, 2016). Despite the limitations, this study provides insight into the positive impact community-based global learning programs can have on global mindedness. Strategically designed immersive, interdisciplinary, community-based global learning programs focusing on

empowering students to develop solutions for real world problems, along with a high degree of meaningful interaction with members of the target culture and critical reflection of the experiences, might constitute an effective model for maximizing gains in global mindedness in a short period of time.

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