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An Indigenous Intercambio Program: Empowering Underrepresented STEM Students to Participate in Scientific and Cultural Exchange Through Study Abroad

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Abstract

The Panama-Heritage University Indigenous Intercambio Program (PIIP) is a science and cultural exchange between participants from both the United States (US) and the Ngäbe and Buglé (NB) of Panama. This study abroad program is specifically designed to resonate with the cultural backgrounds of Latinx and Native American students together with the Indigenous community they work with. PIIP provides a model for developing a community-based study abroad experience that is empowering for both students and host communities. Data gathered from US students, the NB participants, and a PIIP professor were analyzed to examine questions exploring how taking underrepresented minority students on an international experience is different - both for the study abroad

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student and the host community. We explore how power dynamics are always at play and begin to redefine the purpose of study abroad. Mutual learning, an exchange of ideas, and a relationship built on reciprocity and respect form the foundation for a balanced and fair partnership. PIIP offers possibilities and hope for both students and the partnering community members.

Abstract in Spanish

El Programa de Intercambio Indígena de Panama-Heritage University (PIIP, por sus siglas en inglés) es un intercambio científico y cultural entre participantes de los Estados Unidos (EE. UU.) y los Ngäbe y Buglé (NB) de Panamá. Este programa de estudios en el extranjero está diseñado específicamente para resonar con los antecedentes culturales de los estudiantes latinos y nativos americanos junto con la comunidad indígena con la que trabajan. El PIIP proporciona un modelo para desarrollar una experiencia de estudio en el extranjero basada en la comunidad que empodera tanto a los estudiantes como a las comunidades anfitrionas. Se analizaron los datos recopilados de los estudiantes estadounidenses, los participantes de NB y un profesor del PIIP para examinar preguntas que exploran cómo es diferente llevar a estudiantes de minorías subrepresentadas a una experiencia internacional, tanto para el estudiante de estudios en el extranjero como para la comunidad anfitriona. Exploramos cómo las dinámicas de poder siempre están en juego y comenzamos a redefinir el propósito de estudiar en el extranjero. El aprendizaje mutuo, el intercambio de ideas y una relación basada en la reciprocidad y el respeto forman la base de una asociación equilibrada y justa. El PIIP ofrece posibilidades y esperanza tanto para los estudiantes como para los miembros de la comunidad asociada.

Keywords:

Underrepresented STEM students, community-based partnership, indigenous exchange, Ngäbe Buglé, Panama

Introduction

The Panama-Heritage University Indigenous Intercambio Program (PIIP) is designed to highlight the strengths that exist in our own community while shining a light on the struggles and agency of Indigenous communities around the world, emphasizing our interconnectedness and how we all benefit by helping each other. PIIP brings together Native American and Latinx underrepresented minority (URM) undergraduate Science, Technology, Engineering and Math (STEM) students from Heritage University, located in

south-central Washington State on the traditional homelands of the Yakama Nation, together with Indigenous community members from the Ngäbe and Buglé Indigenous peoples of Panama to build and deepen their understanding of their shared Indigenous roots (80-90% of Latinx persons originating from Latin America come from Indigenous backgrounds; Kumar et al., 2011; Green et al., 2000; Grugni et al., 2015). The PIIP partner community within the comarca Ngäbe Buglé of Panama functions as a global science and cultural exchange between participants from both the United States and Panama and is organized together with the Congreso General Ngäbe Buglé (CGNgB, traditional government of the largest Indigenous group in Panama).

Heritage University (HU) is one of two institutions of higher education in the United States that is both a Hispanic Serving Institution (HSI) and a Native American Serving Nontribal Institution (NASNTI). HU is a small, private, nonprofit university located on the ancestral homelands of the Yakama Nation in south-central Washington State. Of the 892 degree-seeking students in both undergraduate and graduate programs, 85 percent of HU students are first-generation college students and 97 percent of undergraduates receive grant and/or scholarship funding. Demographically, 75 percent of undergraduate students identified as Hispanic/Latino, 10 percent as Caucasian, and 10 percent as American Indian or Alaska Native. Many of the students attending HU are not able to experience another place in the world as part of their educational journey. HU students are often geographically limited to the Yakima Valley for any number of reasons: family ties, economic resources, employment, immigration status. Many have not left the valley often throughout their lives, even to travel to the state's largest urban area, Seattle.

In the process of developing PIIP, we worked to establish a meaningful relationship with our partnering community built on mutual respect and trust. The CGNgB leadership shared that they had a longstanding relationship with the Centre for Indigenous Conservation and Development Alternatives (CICADA) at McGill University and that they would like to see us work together. CICADA members have been working with the Indigenous groups of Panama for over a decade and after discussing our mutual interests, became critical partners as they provided many introductions and helped with the process of relationship building within the comarca Ngäbe Buglé communities. As HU is a small institution of limited means and personnel, we also fostered partnerships with

our regional academic community, bringing together the expertise necessary to develop projects that address the priority areas identified by the CGNgB. A partnership was established between HU and the Engineers without Borders chapter at Washington State University (EWB-WSU). EWB-WSU specializes in working with communities to provide access to water and were already looking to develop a project in the comarca Ngäbe Buglé. The School of Journalism at the University of Oregon partnered with us to help us document our journey and to fulfill a request made by the CGNgB leadership to continue to provide a mechanism for their voices to be heard in the international community.

The Ngäbe and Buglé peoples of Panama are two Indigenous groups that collectively have over 260,000 members and were grouped together by the Panamanian government in 1997 to form the largest and most populous of the comarcas indígenas, which function similarly to the Native American reservations in the United States. While Panama is considered a developed country, the economic reality of the Ngäbe Buglé is far different. According to the 2008 Standards of Living Survey, over 96 percent of the residents of Indigenous areas in Panama live in poverty and of those 85 percent live in extreme poverty (INEC, 2008). Of all the Indigenous groups in Panama, the Ngäbe Buglé have the least access to all types of basic services as a greater proportion live within their comarca in traditionally small, dispersed clusters of households which present significant challenges for providing services (Vakis & Lindert, 2000). The Ngäbe Buglé communities within their comarca have limited or no access to clean drinking water, sewage treatment, or power (electricity or gas). The majority of the Ngäbe Buglé population collect water from rivers and streams, which is rarely treated (e.g., boiling, filtration, or chlorine) and power for lighting and cooking is obtained primarily through the use of kerosene, candles and firewood. Despite these challenges, cultural values and traditions are strong, as are the languages of the Ngäbe Buglé peoples.

The community-based participatory research (CBPR) model provided the initial framework for PIIP (Davis & Reid, 1999; Hall & Tandon, 2017; Israel et al., 1998; Fransman et al., 2021; Lepore et al., 2020; Wallerstein et al., 2020). Students work on projects that have been designed with the partner community and that are relevant to both the Indigenous communities as well as the students' own home communities. For this reason, no two years will be the same programmatic experience for PIIP participants as the program will evolve with

the changing community needs of our partners. The intensive nature of this program also requires us to keep the numbers of student participants low, with a goal of two to six students per year. PIIP is motivated by the need to (i) train URM students and provide them with the same opportunities as non-minority students so that they can provide valuable expertise and mentorship in their own underserved communities and serve as role-models and teachers to future scientists, and (ii) to include Indigenous peoples, who have historically been excluded from the scientific community, as equal and equitable partners and participants in scientific research and community development projects. PIIP aims to create a collaborative global framework to foster a diverse community of STEM scholars, particularly from Native American and Latinx communities, and prepare them for the global STEM workforce.

Programs to study abroad for a year or a term, or the chance to participate in short-term professional experiences or internships, are often expensive, limiting access to students whose families can pay or to students who successfully compete for grants or scholarships. Sometimes international educational experiences can be folded into student loans, presenting students from already stressed financial backgrounds with the difficult task of weighing the potential for long-term benefits of the experience with the specter of life-long student debt looming upon graduation. The PIIP program covers all costs of the participating students, substantially lessening financial barriers. We acknowledge that financial barriers were not removed entirely as HU students are often working while attending university. While modest stipends are provided, the time student participants spend away from home with the PIIP program will likely result in a net loss of wages they would normally expect to earn from their jobs. Therefore, the PIIP program is designed as a shorter, two- to three-week experience (the exact length depends on the projects of that particular year) to lessen this financial impact.

In December 2016, the Center for Indigenous Health, Culture & the Environment (CIHCE) at HU held a Symposium on Indigenous Development in Toppenish, Washington, in order to hear directly from the CGNgB about their community priorities. The purpose of this symposium was to provide a platform for the leadership of the Ngäbe Buglé to give testimony about their struggle for sovereignty, the pressures from outside interests in their comarca's natural resources, and their desire to form partnerships to provide basic services for

their communities. The President of the CGNgB and two of his governors (known as Caciques) and the health coordinator for the Ngäbe Buglé were also able to spend a day with the Yakama Nation Tribal Council and presented at a meeting of the Affiliated Tribes of the Northwest Indians. Tribal leaders at this meeting noted that many of the Central and South American Tribes are 50 years or more behind where US Tribes are in the pathway to sovereignty and could learn much from the leadership of American Tribes. Following this testimony, the leadership of the Ngäbe Buglé asked the CIHCE to help facilitate these new relationships with the tribes in the United States in order to establish an 'intercambio' (exchange) of ideas with community members regarding the critical importance of Indigenous lands on a global scale.

The first year of PIIP (2019) began with a second symposium - this time held in San Felix, Panama, a location central to the three regions of the comarca Ngäbe Buglé. Parties who are working or have an interest in working collaboratively with colleagues in the comarca Ngäbe Buglé came together for the first time for the inaugural Comarca Research Alliance Meeting. The CGNgB noted that there are a growing number of groups and projects based in the comarca Ngäbe Buglé, but often without coordination or even knowledge of prior or ongoing work. The CGNgB also voiced concern that they were repeatedly not informed by the different entities working within their borders of their activities. The CIHCE at HU together with partners from CICADA and the leadership from the CGNgB facilitated a meeting for all to learn about each other and consider future directions together, under three main themes decided upon by the CGNgB: (i) Sustainable Agriculture, (ii) Community-Based Environmental Monitoring and Stewardship and (iii) Ordenamiento Territorial. The PIIP program required the HU students to provide translation and communication services for the participants. Following the alliance meeting, the PIIP students began work with the EWB-WSU project, where they were asked to continue assisting in communication between the EWB group and the community in which the water access project was being conducted. For the first year of the PIIP program two Latinx STEM students were chosen as bilingual Spanish-English abilities were essential. PIIP 2020 and 2021 were cancelled due to COVID-19 but are expected to resume in 2022.

Study Abroad: What It Should Do for Students and Communities

To frame our study, we look at what study abroad is, what study abroad programs can do, and, perhaps more importantly, what study abroad programs should do for the students going abroad and the communities hosting them. There is a lack of consensus about what study abroad means and what a study abroad experience is for; therefore these programs often result in colonial and imperial practices that reinforce inequitable power dynamics. Language around study abroad programs often contain the term 'global citizenship' which is a highly contested term (Golubeva et al., 2017; Streitwieser & Light, 2016), and one that it is often confused or associated with "cosmopolitanism" (Ramírez, 2013). To begin to understand and balance the power dynamics at play when a student from the US goes on a study abroad experience, especially to a developing part of the world, the context of political and social norms must be examined. An understanding of world history becomes crucial because the US holds a place of economic, military, and cultural privilege (Reimers, 2009). Many scholars have turned their attention to addressing the extensive and problematic overuse of the 'global' catchphrase in connection with study abroad (Moreno, 2021). Soguk (2014) criticized the "emptiness attached to the overused term 'global citizenship'" and stated that "both as concept and praxis, [it] is often simply announced rather than exemplified or substantiated" (p. 49). We are left to wonder, how does one become a global citizen? The term is problematic, because we believe one must do more than simply go abroad to truly become a 'global citizen'.

While there are many assumed purposes tied to assumed outcomes related to study abroad, no explicit purposes or outcomes were obvious, nor was there clear consensus on how those purposes or outcomes are realized. Even though the "political intent of study abroad is often unspoken and is certainly contested" (p. 242), Reilly and Senders (2009) found that study abroad is "integrated into widespread narrative of class reproduction" (p. 243) and is commonly viewed as an activity that produces social capital. Students who travel abroad are in some sense 'ahead' of those who do not, their resumes are more "imposing, their testimony more moving, their experiences and education more applicable. Study abroad, in other words, is an investment... It is one of the few products that students can buy that seems to set them apart from the rest"

(Reilly & Senders, 2009, p. 243). The students who are realistically able to access study abroad programs are most often privileged, both socially and economically, and “many of them treat study abroad as a right and an entitlement, but not one that entails responsibility” (Reilly & Senders, 2009, p. 257).

The ongoing impact of colonialism within study abroad programs is a very real phenomena that impacts both students from the US and the communities that they visit. Study abroad and international education practices have their roots within the colonial systems in place around the world and are steeped in the colonial/imperial mindset that the rest of the world exists to benefit privileged (in this case) Americans. Ogden (2007) writes that US students who “yearn to be abroad, to travel to worlds different from their own, to find excitement, to see new wonders and to have experiences of a lifetime” (p. 37) are “children of the empire” seeking neoliberal gains and see the world as “theirs for the discovery, if not for the taking” (p. 39) while imparting their ways onto host communities. We know that “internationalism is rooted in colonialism and imperialism, especially when the production of knowledge and other academic gains flow North to South. Hegemony is therefore inherent in our pedagogy, practice, education and attempts at globalization” (Razack, 2002, p. 255). These scholars point out that too often the emphasis presented to US students is on ‘selling’ study abroad as a way ‘discover’ new lands, have adventures, focus on themselves (at the expense of the faceless non-White people who already live in that location), impart their knowledge rather than challenge themselves to learn in a new setting, and/or have a vacation. Despite the deep roots of study abroad, neoliberal and neocolonial undertones have not gone unnoticed and critical scholars continue to draw attention to these harmful ideologies (Moreno, 2021). Critical scholars such as Doerr (2012) and Zemach-Bersin (2007) have expressed their apprehension and skepticism with the marketization of ‘global citizenry’ “which encourages the (mis)conceptions that study abroad automatically equates with increased global awareness and citizenship” (Moreno, 2021, p. 95). This leaves us hopeful that programs such as ours can change the way that study abroad programs impact the students in the programs, can expand the demographics of the students who find the programs attractive and choose to participate, and can create partnerships with host communities that are balanced and reciprocal in nature.

The paradigm surrounding study abroad programs as benefiting the students without true partnership with the host communities is highly problematic and needs to be remedied. Addressing the goal of study abroad is one way to examine the dominant narrative and to create change. This can be done by assuming that the “primary goal of education abroad should be developing students’ capacities to act effectively in local contexts, frequently involving respecting local cultural assumptions and ways of being” (Hartman et al., 2020, p. 52). Students from historically underrepresented populations within the US “bring experiences that lead them to see oppressive structures with a particular clarity, and we see instances of them allying with local justice advocates to resist” (p. 51), giving them a unique position to be partners with their host communities in ways that White study abroad students might not immediately, or ever, understand or take up. We agree with Reilly and Senders (2009) that “study abroad should deliberately address issues of economic injustice and disparity, and that we should push our students to analyze their own relative wealth more critically” (p. 249). Our current study begins and furthers work toward these ends.

More students of color and first-generation students are studying abroad now than in previous years, however, there is still a disconnect between which students feel that going abroad is expected, attainable or obvious. Latinx students in particular may have different family expectations and experiences that make going abroad feel unattainable, or it may be something no one has helped them consider as a viable possibility. Obstacles to participating in study abroad programs that many Latinx students face include: lack of exposure to study abroad, concerns about degree completion, family obligations and influence, anticipated discrimination, lack of personally relevant programs, and exclusionary marketing practices (Goldstein & Lopez, 2021). In addition to these barriers, Latinx students are also more likely to have off-campus jobs during the school year and to work longer hours than their White peers in order to assist with family expenses and/or to finance their education (Martin, 2015; McClure et al., 2010; Pascarella et al., 2004; Tolan & McCullers, 2018). There is evidence, however, that students of color and first-generation students have skills and abilities that make them good candidates for study abroad experiences and that these programs can have positive impacts on the students. Negotiating multiple layers of identity is central to first-generation students’ ability to move between the requirements of home and school environments. Such cultural navigational

skills are valuable in study abroad experiences which require students to interact with individuals who differ from themselves on multiple dimensions (Goldstein & Lopez, 2021). Additionally, Wick et al. (2019) found that Latinx students studying in Costa Rica were able to take advantage of their pre-existing strengths through familial, aspirational, linguistic, and resistant capital to frame and enhance their abroad experience.

In regard to educational equity, study abroad programs are still most available to those with knowledge about how to participate (because parents, counselors, friends, etc. have had those experiences) and the money, time and support to do so. We, as researchers, also know that study abroad is one of several high impact practices associated with greater student retention and engagement (Kuh, 2008) and therefore can be valuable for first-generation and students of color to participate in as well. However, first-generation students are less likely than their continuing generation counterparts to have been informed about high impact practices and the benefits of these practices to their undergraduate career (Demetriou et al., 2017). Additionally, Doerr (2018) explained that the “expertise and possessed global competence of minority students is discounted in the current ‘global’ discourse which implies that one can only gain global competence through study abroad and that all other types of global or intercultural knowledge are not considered legitimate” (p. 99). Hartman et al. (2020) tell us that “increasing attention to the strengths and nuances of underrepresented students’ participation in education abroad highlights the ways in which the practices of education abroad continue to embody colonial tendencies...rather than attempt to avoid these tensions, we should walk toward them” (p. 36). In light of these findings, we agree with Martinez et al. (2010) who described study abroad equity as a social justice issue.

It is critically important to consider and analyze the impact of a study abroad program on the host community in addition to the students participating in the programs. Focusing too heavily on the experience of the visiting student promotes and perpetuates the implementation and continuation of a colonial relationship. Host communities need to be recognized and honored as full partners in an equitable and reciprocal relationship in order to avoid a merely transactional exchange that prioritizes the comfort and experience of the western/northern hemisphere student. As Ramírez (2013) writes “if education abroad programs are to prepare global citizens committed to worldwide respect

of others and appreciation of different cultures, then their messages and assumptions must be consistent with these goals” (p. 9). Study abroad programs need to center the needs and wants of the host communities and teach their students how to engage in the work in respectful and reciprocal ways. When students arrive with the underlying assumptions of a ‘White savior’ worldview, the host community is harmed. “In higher education this [White saviorism] is manifested in superficial forms of international service that allow privileged participants to feel they are ‘making a difference’ while undertaking menial activities that provide little benefit to the communities they are supposed to be serving” (Ziguras & Lucas, 2020, p. 223). Those organizing study abroad programs must attend to the issues that communities wish to address, and they need to equip the participating students to do this work. “Education abroad organizers often assume that contact with our students is what local communities value most, but our partners may have more pressing concerns” (Ziguras & Lucas, 2020, p. 225). Thankfully, this issue is beginning to be addressed, and “today, definitions of international service learning, and development volunteering more broadly, almost always insist that the host community is integrally involved in identifying priorities, designing and overseeing the activity” (Ziguras & Lucas, 2020, p. 224). In essence, we are arguing that mutuality and reciprocity should be the goal (Garcia & Longo, 2017; Dear & Howard, 2016; Keith, 2005), and that the students going on study abroad experiences should be learning from and with their hosts. In this type of learning paradigm, both parties share and learn with and from each other. We know that students of color are good candidates for a study abroad experience from the host community’s point of view, as they “bring social and navigational resources to global learning experiences before they even begin to experience any programming” (Hartman et al., 2020, p. 46). As Ziguras and Lucas (2020) found, for the host communities “it is the act of teaching visitors that is valued by local students and other community members, especially if they are able to share their experience with outsiders in ways that generate pride and respect” (p.226).

Introducing Social Justice into Study Abroad Programming

Equity and access to study abroad experiences are not evenly spread across students on college campuses. Oftentimes, these programs are more

known, available, and accessible to students who are White and come from economically advantaged backgrounds. Based on the demographic makeup of students at HU, many of these students would not normally participate in, or have access to, study abroad programs. It is the responsibility of educational institutions to ensure equity in access for all students. But what does 'access' mean for HU students? In this case access is not simply a plane ticket purchased and a hotel room booked, but includes such things as: emotional support, financial support, mentorship, logistical support (e.g., passports, stipends), and support for families of students to achieve comfort (not just a handout). With these types of supports in place, we can explore the questions surrounding how taking students such as the first PIIP participants, Miguel and Orlando, on an international experience is different than it might be for the 'typical' study abroad student. Does this type of experience 'do' something different for students from underrepresented minority groups? How do they themselves change the experience?

Many study abroad programs have been built within the framework of colonialism. This is harmful to the host communities and the students as well. A program such as PIIP, built with a foundation of reciprocity, respect, and trust between the partners is more meaningful and has a greater impact for all participants. PIIP moves away from the model commonly found in study abroad programs that, while perhaps unintentionally, invoke historical trauma in Indigenous communities when students arrive as tourists, there to extract an experience and/or to impose their ideas of what the community needs. The PIIP program shows how a community-based experience/exchange, with students embedded with community through partnership and mutual learning, creates a vastly different experience for both students and host communities.

Designing a program that is founded in mutual fundamental values between the two communities coming together is critical for empowerment of participants. This is a large factor in why HU chose to work with the communities of the comarca Ngäbe Buglé, and conversely, why the Ngäbe Buglé chose to work with Heritage. The students from HU grew up with a close connection to land and agriculture, which is similar to the Ngäbe Buglé peoples, but is also different in a way since they are part of a migrant community and Ngäbe Buglé are part of original/first peoples on their comarca. Still, we see this as a similarity and a connection. This issue is addressed in our paper by looking

at how our HU students and our Ngäbe Buglé community leader all see these connections.

The students from HU were empowered through choosing a location that highlighted the skillsets of students while in the Panamanian community. These skills included their ability to speak Spanish, their ease and facility with technology and computers, and their ability to be translators. The HU students did not have to ‘hide’ or be cautious when speaking Spanish as they would in the US. When at home, they are members of an oppressed group; in Panama they are not. As university students they are part of an elite. All of these factors contribute to changing their viewpoint of themselves through this experience. So, we ask: Does the opportunity for HU students to see themselves in a different context change their perspectives on how they see themselves and their dreams for themselves, for their families, and for their communities?

Analysis Of Interview Data from Program Participants

Miguel and Orlando’s Stories

Miguel Palma has an easy, if shy, smile under a shock of black hair that sometimes falls out of place to hang across his forehead. He stands a bit behind others in new situations, quiet and observant, content to listen. He pays attention, though, and he smiles when responding to questions. Who are you? What is your name? What do you study? Where are you from? Miguel answers these questions politely, and then often tells his questioners that he “doesn’t speak Spanish well,” despite the fact that he is in the midst of a conversation... in Spanish.

Miguel, on 19 June 2019, had just completed his first year as a pre-engineering student at HU in Toppenish, Washington, within the Yakama Nation. He speaks Spanish at home but feels insecure about his skills on this trip to Spanish-language Panama. “I never took formal classes in it,” Miguel says by way of explanation, yet he converses easily enough with Panamanians he meets during his two weeks abroad.

Miguel and his classmate, Orlando Pelcastre, on 20 June 2019, were the first HU students to accompany faculty member Jessica L. Black, head of the Environmental Science & Studies program and director of the Center for Indigenous Culture, Health and the Environment, to Panama for a two-week immersive cultural and professional experience. In many ways, they are not students who expected to travel abroad during their academic careers: they are both first-generation Mexican-American college students who work to support themselves and their families while they attend classes. Yet those facts make the experience all the more meaningful: two weeks in Panama bolsters their confidence in themselves personally and professionally and gives them a window to opportunities for their futures that neither has considered before.

Like Miguel, Orlando had just finished his first year at HU studying environmental science. Orlando wears glasses and a nearly permanent grin. He has known Miguel distantly since grade school, but now they are figuring out how to be roommates in hotels and dorm rooms around western Panama. Where Miguel tends to hang back and observe, Orlando is bubbly and outgoing. He talks to anyone and everyone in Spanish and English, and processes everything he sees with a running commentary of statements and questions: “This place looks like Minecraft. Is this area middle class? Do you think people eat that? Should I buy this?”

On the way to Panama, Miguel and Orlando had a chance to stop in Washington, D.C., where they visited museums and toured the nation’s monuments for a few days before arriving in Panama. Until this trip, neither had possessed a passport or been on a plane. Neither had traveled much outside of their hometown of Yakima, a small city of just under 100,000 residents situated within the Yakama Nation in the center of Washington state. The reservation is high desert country, and agricultural jobs have brought in seasonal workers primarily from Mexico who have stayed and now make up just under 50 percent of the population. When Orlando boarded that first flight in Yakima, he knew he was going to “the capital” first, but he did not realize it was the capital of the United States rather than Olympia, the capital of the state. “When I got off the plane I was like, ‘Whoa, this isn’t Olympia,’” he says. “I just didn’t think about it.”

In Panama, they are blown away by the contrast between Panama City, with its tall buildings and urban infrastructure, and the conditions in rural western Panama, where they spend the majority of their time on the comarca Ngäbe Buglé. The comarca is similar to a reservation in the United States; it is land set aside for Indigenous groups where they hold some land rights and some administrative power. There are no tall, modern buildings in the comarca. People live in small government-issue concrete homes or in traditional homes made of wood with bare earth floors. Chickens and dogs roam around small family-centered communities of twenty or so individuals, and settlements that do not lie along one of the winding, paved mountain roads that connect the comarca to the rest of Panama are accessible only by footpath.

For Miguel, the shock is not about the conditions of life in the comarca; it reminds him of years he spent living in Mexico as a small child. Those years give him a different perspective: he understands that not everyone around the globe experiences the same standards of living, but he is still taken aback by the disparity between the capital and the rural areas. “You can’t really think you’re in the same place when you’re in the comarca versus Panama City,” he says.

For Orlando, that contrast hits a little harder: “The way I live back in Yakima — I have a floor with tile. And here, their floor is made out of clay. And they wear mostly Crocs in their house, and I go barefoot in my house.” He is most affected by an afternoon watching children in a community in the comarca playing soccer with a plastic soda bottle. When the children are gifted a soccer ball, Orlando says he watched the children play “like it was their last day. I remember when I was younger, if someone brought me a soccer ball, I would be excited, but not as excited as they were. Because I never kicked a bottle to play soccer.”

With the first week gone by and the second underway, Miguel is embracing his Spanish-language skills and finding his confidence. He stops telling people he does not speak Spanish well, and jumps in to help translate in his quiet, friendly way. At the beginning of the trip, he often punctuated his statements with a quick “psyche” to signal his uncertainty, or to hedge his bets in case he was wrong, or someone thought he was overly ambitious. “When I get my PhD,” he might say, then: “Psyche, I’m just playing.” He still does this, but he also talks about his future plans for an engineering career with more boldness and less hesitancy after meeting engineering students from WSU.

After the symposium, Miguel and Orlando spent two days volunteering with the WSU chapter of EWB, and pre-engineering Miguel is suddenly in the midst of his peers: in order to complete his engineering degree, he will have to transfer from HU to another institution with a full engineering program (Figure 1). WSU is one of those partner institutions. The chance to network with the WSU engineering group only serves to deepen his commitment to his field of choice. “It opened doors, opened my eyes,” he says. “I have more of a passion for being an engineer and what I’ll be capable of doing in the future.”



FIGURE (1): MIGUEL AND ORLANDO HELP KEEP A TRENCH OPEN FOR WATER TO PASS THROUGH WHILE VOLUNTEERING WITH SCHOOL3’S CHAPTER OF ENGINEERS WITHOUT BORDERS (PHOTO CREDIT PARTNER1)

Talking to WSU engineering students about their experience in the program and shadowing the EWB-WSU faculty advisor, is an opportunity to develop a personal relationship with a potential mentor for the next stage of his academic career. Miguel also sees how his future career could expand in a direction he had not known about before: humanitarian work.

Miguel’s favorite part of the experience was:

How we all worked together, and the community really wanted to help us, because they know it is for them. We didn’t start the project, they started the project, they just need a little bit more help, some assistance, I guess. It’s not like we’re just creating it for them. They knew what they wanted to do, they just needed a little hand to push them up, you know what I mean?

Miguel served as a translator for the engineering students, most of whom had no Spanish language skills, and got his hands dirty clearing

waterways, hammering nails, pouring concrete, and carrying materials up and down slippery hillsides of red clay. “I felt like I was empowered,” he says.

At the end of two weeks, Orlando and Miguel are okay with going home: Orlando is looking forward to a private bathroom, and Miguel is daydreaming of steak after a steady diet of rice and chicken. Reflecting on the whole experience while buying some final souvenirs in Panama City, Orlando holds the people he has met close to his heart. “I want to go to other countries now,” he says, but Panama will always be special for being his first trip outside of the US. “The people from the community impact you in a certain way that you just can’t explain.” He says he might consider working as an environmental volunteer with the Peace Corps. “I never knew about it before,” he says. It is another open door he has learned about because of his time in Panama.

Miguel says the experience has shown him the importance of understanding different perspectives: “We are just so centered in our general area, and we don’t want to go outside that area. Coming here to Panama has opened multiple doors for me experience-wise and just getting to know everybody and how everything is different. It felt like home, I guess.” He pauses thoughtfully. “I have no limits,” he says.

Celestino’s Experience

Celestino Mariano Gallardo is the founding president of the first community environmental group in his region of the comarca Ngäbe Buglé - Ambientalista Mirono Cronomo, para la Defensa y Protección de los territorios y recursos naturales renovables y no renovables en la región comarcal cuya siglas (A.A.MI-CRO). The group was named for Mirono Cronomo, one of the great warrior leaders from the time before the arrival of the Spaniards. Celestino has chosen to serve as the liaison between HU and the traditional government and communities of the comarca NB throughout all the years of our partnership. On 7 March 2021, Celestino was elected as the President of the XIII Congreso General Ngäbe Bugle, a lifelong dream of his and the culmination of forty years of public service.

Celestino is committed to his community and to activism that promotes protecting the environment and the well-being of the people in his comarca. He

became involved as a young man, and “at a very young age I joined social movements in defense of workers’ interests and I also began to organize civil organizations, which is all about organizing plans and sustainable development to the communities.” He talks about “situations that we see as threats to our comarca in terms of the environment, of environmental imbalance” that have to do with water shortages, the use of chemicals to grow food, mining, pollution, and the loss of traditional ways of life.

Celestino and the organizations he represents have chosen to work with HU for specific reasons.

We know HU because they also promote and are very interested in working on environmental research and we have the opportunity to collaborate in maintaining and learning about the values of the different natural species that we have. And all this is also thanks to our work through A.A.MI-CRO, since from here we have promoted work proposals that we want to support the communities so that they also know how to survive and take advantage of the resources that surround them without the need to destroy it.

This quote highlights the need to work collaboratively, with the community in the comarca taking the lead on project needs and wants. One request made by Celestino was that HU bring students that could speak Spanish, a request that was honored. “It is fun to share the culture of one town with other towns where the language is the essential bridge of communication, in this sense the members of the communities were able to understand and felt pleased with the students since the students spoke Spanish quite well.” Bringing students such as Miguel and Orlando to the comarca in Panama allows Celestino to have help that he otherwise might not access, but in a way that is respectful and that supports the underlying values of the Ngäbe Buglé people.

The commitment to a true collaborative process is further highlighted by Celestino when he states: “I believe that a commitment to work with more security and confidence is being orchestrated through HU with the comarca.” He goes on to explain this a bit more, saying that “they offer us a good will to collaborate with us, that gives us the opportunity to offer ideas of what we need.” And the need is great. Celestino speaks of many needs, without the expectation that someone else will meet them all, and with gratefulness for the

care and concern shown by those coming from HU. “We know that the little they give, they give it with a lot of will, with a lot of heart and we need it, and for us it is of great benefit, of great importance.”

One further level of support and assistance that Celestino finds to be important is the documentation and sharing of knowledge that happens between his community and the students from HU. When Celestino speaks of “documenting” he is referring to the lack of a written or recorded oral history of the peoples of the comarca from their own perspective. Without these materials there is nothing for the youth to learn from.

Something that must be taken into account at the level of everything that happens, everything that is done or happens with our comarca in our society is also important. We have learned that science and information are born from history by which human beings advance in knowledge, right? When I started in the Congreso General, I found a void of such necessary material for our people today and for the new generations. I can comment on what I know, but there is not a document, there is not a book, there is not a documentary that records that information. And in this way we are weakening ourselves. There is great importance for documenting the information that the new generation needs. Therefore, for me it is very vital that we also enter the comarca to carry out training activities to prepare groups of young people in the area of documenting. When it comes to documenting, and I think that to begin with, the universities also present an opportunity that we should take advantage of, like University of Oregon, which has a great source of collaboration with their students in terms of this knowledge and puts their students at our service so that they can come to our comarca to do their work of experienced journalism.

Celestino also talks about the importance and impact of the students that visit from HU.

The importance of the interchange between the knowledge of Indigenous communities and cultures, with the students from diverse Native American tribes that come from the United States to this biological station, is because we have found the importance of modern science, found through scientific investigation, and also the importance

of the empirical knowledge of Indigenous communities from historical times and traditions. Therefore, it is important to marry both sciences, and from there, to produce better knowledge.

Students, Miguel and Orlando included, brought a perspective and presence with them that allowed them to see their Panamanian counterparts as equals with knowledge that may have been different, yet was equitable in its value and relevance. They were open to working together, to listening to their host communities, and to learning from and with them (Fig. 2). As Celestino points out, this is an important aspect of the work being done by/with the PIIP..



FIGURE (2): MIGUEL AND ORLANDO TALK WITH CELESTINO MARIANO GALLARDO IN SAN FÉLIX, PANAMA (PHOTO CREDIT DENISE E. SILFEE).

Jessica's Perspective

Jessica L. Black is an Environmental Science & Studies Professor at HU. She is also the Director of the Center for Indigenous Health, Culture, & the Environment (CIHCE). She became involved in the work in Panama through her father, Len Black, the now retired Chair of the Business Administration Program who also worked at HU. Len Black took groups of business students to Panama to work on entrepreneurial projects in the comarca.

Jessica began accompanying her father to Panama when community members there expressed a desire for someone with an environmental science background who could help them collect data to guide their use of land and resources. Now that her father is retired, she has continued the legacy of his and HU's relationship to the Ngäbe Buglé communities. She visits the country several times a year and works closely with Celestino to build partnerships with key stakeholders in and out of Panama and to share resources around economic, environmental, and agricultural initiatives.

Jessica waited to bring students to Panama, though it was always her goal to include students in the work there. “I wanted to have a clear purpose when we came,” she says. She chose Miguel and Orlando because of their academic accomplishments and their personalities. “They’re very bright students,” Jessica says. “And I wanted them to experience literally the world, and I needed their help as well. They’re not just here as students experiencing a great adventure, they’ve been working.”

One of the tasks Miguel and Orlando helped with was running the three-day Comarca Research Alliance Symposium held in San Félix and attended by over 50 leaders from the Ngäbe and Buglé tribes and partners from organizations, universities, and businesses inside and outside of Panama (Fig.3). “These two students have connected with our Ngäbe, Buglé, and Panamanian colleagues to a degree that I haven’t really been able to,” Jessica says. “They instantly put people at ease because of their mannerisms, by the color of their skin, by their personalities, by their intelligence, and really because they are truly lovely individuals. And the communities respond to them.”



FIGURE (3): JESSICA L. BLACK, RIGHT, AND CELESTINO MARIANO GALLARDO, CENTER, GREET COMMUNITY MEMBERS ATTENDING THE COMARCA RESEARCH ALLIANCE SYMPOSIUM (PHOTO CREDIT DENISE E. SILFEE)

Jessica makes it her goal to find opportunities for students to experience different locations around Washington, the United States, and abroad at this critical point in their development. Her position as the Director of CIHCE and the support of HU provides her with funds to invest in student development experiences, including chances to experience a slice of the world outside of

Yakima. “I’m particularly interested in working with Panama because many of our students are Hispanic,” Jessica says. “And, in the United States, they’re considered an under-represented minority in many different fields and in universities. Here [in Panama], these students, in many ways, are the elite. They are university students, they are studying for amazing careers, a lot of our students are bilingual, and they are leaders here. And their skin color, and their accents, even their abilities in being farm workers in the past or currently, these are all positives here. They are considered strengths.”

Jessica sees opportunity for Native students from Yakima to come to Panama as well:

There is an instant connection that is hard to describe between Indigenous groups. They know each other. They understand that some of these issues are global that they are facing. We talked about water, this is a global issue. We talked about the path to sovereignty and rights, these are global issues. The conversations between these two groups is really amazing. And if I can facilitate that, can help facilitate this global indigenous exchange, that is one of my major goals at HU.

Discussion and Conclusion

Power dynamics are always at play, although they are most often ignored or discounted. However, to have a truly equitable, and we argue more valuable study abroad experience, for both the visiting students and the host communities, these dynamics must be recognized, attended to, and neutralized as much as possible. Within the PIIP program we see this work happening. Miguel and Orlando talk about being a minority student at home, at HU, in their hometown of Yakima, so they understand what it means to be a member of an oppressed group and to be fully aware of this power dynamic. When these students go to Panama and work with the Ngäbe Buglé, they become a member of a privileged group while still understanding the power dynamic that is happening. This allows students such as Miguel and Orlando to recognize this differential, and to work with the Ngäbe Buglé rather than to try to dictate what should be done in the community. Jessica also talks about being very purposeful in dealing with the power dynamics, in choosing which students to take to Panama and asking the community what they need and want, fostering the agency and resiliency of the community members. Celestino talks about

choosing HU and the students there, the request to have students come that can readily communicate with his community. He has choices - other universities have offered/asked to come to his comarca.

Traditional Ecological Knowledge (TEK) is a strong component of the CBPR model and is highly valued by the knowledge holders in the Ngäbe Buglé communities. While there is not one definition of TEK, many “Native scientists and philosophers agree that TEK originates within and from a particular place, the land and place have taught the people indigenous to that particular region over many generations, and that TEK is the basis for indigenous peoples’ languages, cultures, and worldviews” (RunningHawk Johnson, 2018, p. 88). Additionally, Kyle Whyte (2013) writes that TEK is a collaborative concept that “serves to invite diverse populations to continually learn from one another about how each approaches the very questions of ‘knowledge’ in the first place, and how these different approaches can work together to better steward and manage the environment and natural resources” (p. 2). In light of this, Celestino was asked if he would consider setting up meetings with community leaders and Elders in the different communities to speak with the students from HU each time they visit. Because these Indigenous community members hold a different view of science, it is important for the HU students to understand this difference. “In contrast to a view of Western science as value neutral, scientists don’t leave their values, belief systems, and world-views behind them when they ask, research, and answer scientific questions. These values and belief systems influence the questions that become feasible to ask, as well as the possible and impossible ways to answer those questions” (RunningHawk Johnson, 2018, p. 86). Indigenous folks know their place and their science the best and an understanding of TEK is important to students coming from the US in that it sets them up well to understand that the Indigenous experts in Panama were gifting them knowledge and to learn respectfully.

The PIIP program begins to redefine the why of study abroad - the purpose. While the literature available offers no consensus, this program shows that by taking students such as Miguel and Orlando, by having professors such as those who are part of PIIP, the purpose of the visit becomes something different than the typical US student going to a foreign country. This is different for both the US students and the host community. Miguel and Orlando were open to learning so very much from the host community, they felt empowered,

and became more interested in and aware of opportunities they have for work in the future. Orlando graduated with a Bachelor of Science in Environmental Science from HU in the Spring of 2022. Miguel completed his AA Pre-Engineering degree from HU in Fall of 2019 and successfully transferred to a partner institution, where he is now in the final stretch of his Bachelor of Science in Civil Engineering degree.

The purpose of study abroad is also highly consequential to the host, and can highlight their agency, resilience, and knowledges. Celestino talks about having these students learn with and from his community, how they listen, and how they can teach each other - which is a beautiful thing to him (and to us!). These two communities share issues that they are both facing and can work together for solutions. The purpose of study abroad in a program such as this one becomes mutual learning, an exchange of ideas, and a relationship built on reciprocity and respect. It offers so many possibilities, it offers hope.

As we consider the next iteration of this project, a question we continue to ponder and hope to address in the near future revolves around how having students who are Indigenous to/from the United States go to an Indigenous community in Panama impacts everyone's experience. We ask this question because it is clear that the most important aspect of the PIIP program is the true partnership that has formed, and will continue to evolve, between the faculty and students at HU and the Ngäbe Buglé comarca communities in Panama. All the participants talked about the importance of this relationship, and this is what makes the PIIP program special and something that we believe should be a model for other study abroad programs. Balanced, fair, reciprocal partnerships create a different type of experience for all those involved.

Future Directions

The next step for the PIIP program is to develop closer ties with Panamanian institutions of higher education to expand to include students from Panama in PIIP. To this end HU has established a formal Memorandum of Understanding (MOU) with the Universidad de Panamá as well as with the Universidad Autónoma de Chiriquí (UNACHI) and is working towards an MOU with Universidad Tecnológica Oteima. These institutions have large enrollments of Indigenous undergraduate students and the CGNgB leadership have voiced their desire to see their youth included in the PIIP community-based projects.

Strengthening these partnerships will also introduce a much stronger element of sustainability to the community-based PIIP projects. By design, PIIP is only several weeks in length. Should any problems or difficulties arise with the community projects outside of this brief time (mechanical issues etc.), distance can be a significant hurdle to solving these problems. Local academic partners, with student participants from the communities themselves, will ensure that PIIP-related community concerns can be addressed quickly. These new partnerships will also open up the possibility of being able to do year-round monitoring projects of numerous environmental parameters. The future for a program such as PIIP does include significant ongoing efforts to secure funding.

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Author Biography

Jessica L. Black is a Mexican-American scientist and educator. She serves as the Director of the Center for Indigenous Health, Culture & the Environment, Professor of Environmental Science & Studies, and Chair of the Science Department at Heritage University. She earned a B.A. in Geology from Wellesley College and a Ph.D. in Geological Sciences from the University of Colorado. Jessica has focused her career on diversifying the STEM professoriate and empowering rural and indigenous communities.

Stephany RunningHawk Johnson is a member of the Oglala Lakota nation, is an Assistant Professor at Washington State University. She focuses her research on supporting Indigenous students attending universities and majoring in STEM and works with local Tribes to incorporate land-based education and TEK to increase Indigenous students' sense of identity and belonging. Stephany's work is done through an Indigenous Feminist lens and is dedicated to supporting Nation building, Tribal sovereignty, and empowering Indigenous communities.

Denise Silfee is an American free-lance multimedia storyteller based in Oregon, focused on how people and communities relate to each other and their environments across cultures. She holds Master's degrees in Education and Journalism and worked as an educator in Oregon, Thailand, Sudan, and Egypt for 11 years before turning her attention to storytelling.

Celestino Mariano Gallardo is from the village of Cerro Iglecia in the Nidrini region of Panama. He has been serving the Ngäbe and Bugle peoples as a freedom fighter, community activist, and politician for four decades since the age of 15. Throughout his career he fostered collaborative relationships to bring opportunities for sustainable development to the region. Celestino currently serves as the President of the XIII Congreso General Ngäba Bugle, elected on 7 March 2021.