



Engagement in Practice: Reflections on Remote Community-Engaged Learning in the Context of a Multilateral International Partnership

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Introduction

A significant aim of many engineering programs is to give students the knowledge, skills, and attitudes to become global problem solvers [1]. There has been re-examination within engineering curricula to prepare students to achieve said outcomes that will help them navigate the culturally diverse global workforce [2]–[4]. Universities across the higher education landscape have developed community-oriented programs that aim to give students team-based opportunities to apply technical knowledge to people-oriented challenges in global settings; these programs have many names but are known as, Community Engaged Learning, Global Service Learning (GSL) [5] or Engineering for Community Development (ECD) [6].

The student and community impacts of these types of programs have been widely assessed as projects have seen success through incorporation of principles such as ethics, social justice, local expertise and resources, and building trusting relationships with shared goals [7]. There has been extensive analysis on the use of ECD to develop global sociotechnical competency skills and positive student learning outcomes [8], [9].

However, historically, well-intentioned university-forged relationships with partner communities and resultant projects have elevated the applied student experience at times to the neglect, or even detriment of, communities [10]. Projects of this type can end up being transactional in nature [11], ignoring social injustices, reinforcing deficiency-based community development ideals, and serving the academic calendar and students more than communities [12], [13].

At the heart of transactional relationships is a prevailing focus on “product” at the expense of “process”. This tendency of engineers to focus on product, to the exclusion of process, is endemic to the profession. We are trained to bring complete solutions to technical problems. And from an educational perspective, aim to integrate as complete as possible experience of the design process (i.e., from ideation to implementation) [6], [14].

The complex context of ‘people’ challenges is difficult to incorporate in the simplified academic version of the design process [15]. In many cases, the solution gravitates toward a technical innovation, thus subverting the relational and contextual elements [16].

There is a need to develop programs that incorporate both a sound pedagogical basis as well as a coherent strategy for community development [17]. Programs have successfully embodied this while working with NGO and community partners in the thoughtful selection of long term projects [18], [19].

This paper details how strong foundational relationships established during partnership development were leveraged for a successful transition to a Collaborative Online International Learning (COIL) environment during the COVID-19 pandemic. This course balanced student learning and academic outcomes with positive community impacts while providing 1) a cultural

engagement opportunity for students and 2) reflections on creating and growing international partnerships for the institutions involved.

Balanced partnership model

At The Ohio State University (OSU), a balanced partnership model (Figure 1) has been established similar to [18] and [20] where foundational relationship components (Honduras-based NGO and Honduras-based university) are based in the host country. This model positions partner organizations to provide components of ECD that are within their core competencies and yet delivers significant value to each of the respective partners' organizational missions. This multilateral partnership model embodies the best practices highlighted in [7] and therefore provides an effective structure to support engagements in international ECD.

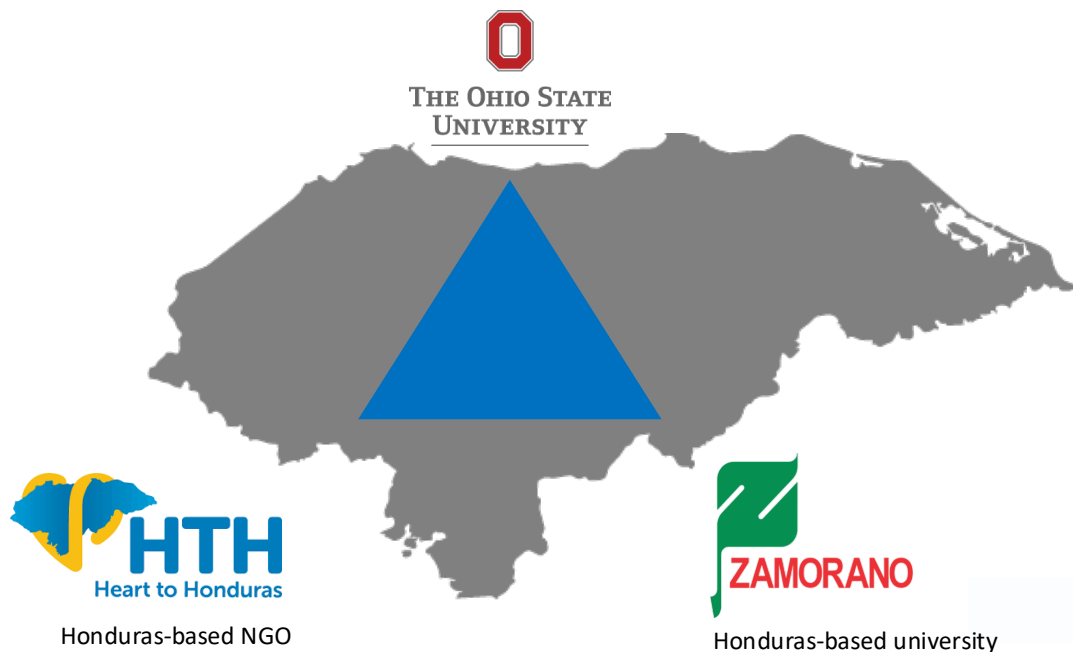


Figure 1. Partnership model for ECD

NGO community development partner

The Honduras-based NGO, Heart to Honduras (HTH), has significant, longstanding community development experience and utilizes a participatory framework in working with communities. HTH aims to foster thriving Honduran communities by developing the gifts and capacities of visionary, engaged, local leaders while working and serving collaboratively and holistically.

We rely upon this in-country partner to provide these necessary community development competencies that are outside of the OSU's engineering-focused core skillset:

- Come alongside communities to which they are in close proximity, forming, maintaining and growing trusting relationships year-round and over a significant period of time
- Develop an awareness in the community of human and material assets
- Foster and grow leadership within the community

- Provide working relationships with external partners: in-country government, community and other NGOs with possible resources to bear
- Relate the contextual frameworks (historical, government, cultural, etc...) of development to the other partners
- Be advocates and ambassadors of the communities they collaborate with when direct community involvement or representation is not possible
- Provide opportunities for partner universities to engage with community -selected and -driven initiatives

In-country university partner

Second, a partnership was formed with Zamorano University (ZU, Honduras) in order to bring a respected, contextually relevant, Honduras-based academic perspective. ZU is committed to developing the youth of Latin America and the Caribbean into leaders that contribute to the region's progress with activities based on research and outreach.

We rely upon this in-country university partner to:

- Complement OSU's engineering-focused skillset with contextually relevant expertise in small-scale agriculture, knowledge management and environmental science.
- Allow the formation of blended OSU-ZU student teams, drawing upon a ZU student base with Central/Latin American cultural perspectives and Spanish language skills.
- Be the primary repository of knowledge and experience resulting from the collaborative work that remains in Honduras for the benefit of Hondurans.
- Provide year-round opportunities for student engagement and follow-up with communities outside the confines of a single collaborative course.

Partnership drivers – “Value to the Partner”

As part of maintaining the “Balanced Partnership Model”, an activity is routinely conducted that enables each of the partners to understand the key drivers of the other two partners. This activity has allowed for clear insight into why each partner is interested in the collaboration and brings those perspectives to the forefront of the design of any new activities. In this exercise, answers to the question, “What does this partnership bring to my organization?” are compiled and discussed. Participants are encouraged to express an organization-centric view of the partnership, to avoid asking partner organizations to spend resources on tasks that do not bring them value.

The result of the “Value to the Partner” exercise is a simple table of potential benefits and their relative importance to the respective partners. This is a two-phase process where potential benefits of the collaboration are solicited from the partners and then compiled into a single list that is then distributed to each of the partners for blind review. The partners then assign a score (1-10 scale, 10 highest) to each benefit to represent the importance to their organization. These responses are then compiled into a single table (Table 1) with side-by-side scores that is used to facilitate a group discussion. The list and the scores provide transparency and aid in communication and are re-visited annually as organizations and their priorities change.

Table 1. (Truncated) Compiled results from “Value to the Partner” exercise

	Benefit of Collaboration	Value to Zamorano	Value to CPHTH	Value to OSU
1	HTH's holistic, participatory, asset-based community development approach to its work in the Santa Cruz de Yojoa region	7	N/A	9
2	By collaborating with HTH, Zamorano and OSU students gain access to authentic, relevant "learning by doing" projects that are designed to benefit Hondurans in underserved communities.	8	3	8
3	Zamorano's involvement makes it increasingly possible for the body of knowledge and experience gained while collaborating to remain in Honduras and be owned by Hondurans. This improves the long term sustainability and continuity of the work.	8	9	8
4	Zamorano brings contextual knowledge to problem solving in Honduras/Central America, including understanding of culture, language and (possibly) history, government and political landscape. This knowledge guides their project involvement and helps OSU students understand these factors.	8	7	8

First partnership activity: A joint COIL course

The first significant collaborative activity of the partnership was the bringing together of two different courses, OSU ENGR 5797.24 (3 credits, 1 semester) Sustainable Community Development – Honduras and ZU IAD3081 Knowledge Management. The result was a 100% remote COIL course with an approximate 50-50 split between joint vs. individual class meetings. As such, students (7 from OSU and 34 from ZU) received instruction from their respective university faculty (2 from OSU and 1 from ZU), while also participating in combined lectures and group project work. The COIL course was jointly planned as a response to the COVID-19 pandemic that resulted in all courses being delivered remotely at both institutions and the travel component of the US course being cancelled.

The course was enhanced by the addition of a bilingual (Spanish-English) classroom assistant, a recent graduate of ZU and resident of Ecuador. This assistant remotely provided Spanish instruction to the OSU students, translation and interpretation with the community as well as relationship facilitation with Honduran partners, the NGO and ZU. In addition, this individual was able to provide cultural context and insight for OSU students. In terms of the partnership model, the course assistant role provides a possible pathway to graduate school from ZU to OSU, providing value to both universities. Indeed the 2021 course assistant is now earning an MS at OSU.

Early lectures sought to set the context of community development for students. Correspondingly, this portion of the course featured guest lectures from the community development NGO and a “meet the community” exercise with host community members recording videos describing “a day in the life” in their community. US-students learned conversational Spanish. Combined university student teams researched and presented within their groups the historical, government, political, economic and cultural elements of the host country (Honduras), while also allotting time for cross cultural learning activities. Finally, students were required to read, review and reflect on others’ critical accounts of university based ECD initiatives in the literature such as [6].

Later project-centric course components focused on responding to the community-identified challenge of water resource management. Each group was given the task of developing a conceptual approach to water catchment and storage for a particular residential scenario posed by

the NGO. Collectively, these scenarios loosely represented the range of incomes and budgets in the host community. Students engaged in activities rooted in Human Centered Design [21] and Empathy in Design [22] such as 1) listening to community inputs gathered by the NGO, 2) utilizing an asset-mapping exercise previously conducted by NGO in the community, 3) conducting a remote community focus group featuring a broad-array of student-generated questions facilitated in Spanish by the course assistant, 4) augmenting technical understanding through presentations from content-area experts in water catchment and harvesting and 5) delivering to the community and NGO a final group report and video summarizing recommendations for each residential scenario in preparation for a final community Q&A.

Reflections on the first partnership activity

After the end of the course, a session was held with representatives from the NGO and instructors from both universities to reflect on the completed work and the partnership. There were four observations that came out of this reflection activity:

1. The NGO stated that the level of engagement of the community over the semester-long duration of the collaborative activity was exemplary. These interactions were characterized as “positive social experiences with genuine participation from the community <in which> process was as important as product/output”. The NGO further noted, “During the final community Q & A session, every person on the commission spoke”. It is postulated that involvement of the well-respected, Spanish-speaking, in-country university students contributed to this active participation, undergirded by deep, trusting relationships established by the NGO in the community.
2. The 100% remote partner interaction imposed by the pandemic surprisingly resulted in improved and more timely communication with both the NGO and the community. Communication had to be deliberate and could not be left to an end-of-semester travel component. Assumptions were tested early allow for an iterative process. There was a shift in the focus of the course away from delivering hardware or “solutions” and towards engaging in critical dialog with communities and the NGO.
3. The NGO partner commented that, from their perspective, the community drove the projects, and this participation was met with flexibility and humility from university partners.
4. Faculty from both institutions reflected that students were engaged and excited to work on projects in a multi-cultural environment with their student counterparts.

Conclusions and next steps

A balanced partnership model of engagement in ECD has been described involving two university partners and a community development-focused NGO. The partnership built on ideas within the existing literature to produce a unique program merging COIL structure and Design with Communities aspects to create a GSL initiative that avoid pitfalls of past ECD programs. Instead of a focus on technology, the resulting course allowed students to consider contextual elements and co-design alongside stakeholder and partners with diverse perspectives.

The success of the collaboration was supported by a strong sense of partner needs and values supported by a “Value to the Partner” exercise. The result was a more participatory and less transactional engagement with the community. The takeaway from this experience was that with strong and meaningful partnerships, a transition to a fully remote environment was possible, providing meaningful educational experiences to students while bringing value to partners and partner communities.

The next steps of this program will be to begin developing qualitative and quantitative assessments of student impact and to work towards establishing metrics for the “Value to the Partners” activity. This will allow a more formal assessment of the functionality of the partnership. These efforts will help understand and balance the trade-offs between student and community outcomes while providing value to the partners.

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