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Cover Page Footnote

The author is grateful to his colleagues engaged in sustainability education at Creighton University, to the faculty working within the Ignatian Pedagogy for Sustainability project, and to his inspirational sustainable energy science students. Of particular note, the author gives special thanks to Teresa Kooima, Scott Sunset, Colin Thomas, Stef Zielke and Anna Ziola for their contributions to this project and to No More Empty Pots for their willingness to engage in this process.

Ignatian Pedagogy for Sustainability to Support Community-Based Projects: Client-Focused Sustainable Energy Solutions



Ignatian Pedagogy
for Sustainability

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Abstract

Seeing the words of *Laudato Si'* as a call to action, we are engaging students in Ignatian Pedagogy for Sustainability through a series of community-based projects with the goal of client-focused sustainable energy solutions and associated dialogue. We outline the development of a purpose-created Energy Technology undergraduate program housed in the College of Arts and Sciences at Creighton University, born from Ignatian sensibilities, and highlight the role of client engagement to engross students in a client-focused design process to deliver sustainable energy initiatives that become practically feasible with student leadership. For the senior capstone of this program, students engage in a year-long Energy Innovation course that brings together students with assorted clients, various stakeholders and diverse sustainable energy-related projects. We argue that such tangible experiences are a pre-requisite to understanding motivating factors for clients to make sustainable energy decisions. Concurrently, while considering the Ignatian Pedagogy for Sustainability, students clearly understand the practical barriers to implementing actual sustainable energy solutions as all invested parties work towards contentment with the delivered solutions.

Introduction

Nearly four years ago we sat with our students watching Pope Francis address the United Nations floor, following the release of *Laudato Si'*.¹ At the same time, a rainbow emerged over the 85-kW solar array that resides on our Creighton campus (Figure 1).

As students and professors of sustainable energy science we were encouraged to be even more intentional in demonstrating ways to live more sustainably. In particular, we focused on sustainability in the context of energy consumption and production. Below, we outline the senior capstone course, entitled Energy Innovation, that is the summative experience of our Energy Technology program. This project-based, client-focused, interdisciplinary program was born out of a simple question. What would an engineering-themed academic program look like if it grew out of Ignatian sensibilities and effectively combined the technical aspects of an engineering program with the liberal arts in the context of sustainable energy solutions? In the past year, we

became aware that this capstone course (now taught five times) had a significant intersection with the Ignatian Pedagogy for Sustainability (IPS) to which this praxis report responds.² Within the context of that pedagogical strategy and the primary language of “Our Common Home,” we recognized that collaborations must be forged between our academic institution, including students, and non-profit corporations to ensure we provided the correct support at the local level. In this praxis report, we focus on one case study within the senior capstone course to serve as a guide to implementing client-focused pedagogy, in tandem with IPS, which gives students the skillsets and practical knowledge to encourage and promote sustainable energy initiatives. Specifically, we review a year-long project with a grassroots non-profit corporation to assist them with implementing sustainable energy solutions during the building of a new facility. Finally, we discuss how the aims and goals of this course align strongly with the IPS published in another article in this issue of [Jesuit Higher Education \(JHE\)](#). Reassuringly, the authors of this article propose five themes of IPS, which closely align with our

course, deepening a personal connection to civic responsibility.



Figure 1. Rainbow over Creighton's 85-kW solar array during Pope Francis's 2015 address to the United Nations

Energy Technology Program: A Brief History

The Energy Technology Program at Creighton University had its first students in the fall of 2011 thanks to grants from the US Department of Energy and the Omaha Public Power District. In a unique approach, twelve faculty members from nine departments came together. They were joined by an equal number of prospective students and industry advisors, along with consultant faculty from Olin College of Engineering (Jonathan Stolk and Robert Martello) who specialize in project-based learning. Together, we envisioned an approach to technical, professional teaching with a focus on autonomous thinking, problem-solving and client engagement. The students would have a background in engineering, but also touchpoints in the social sciences and environmental topics, as related to sustainable energy. Ultimately, a strong focus on solar energy became the initial strategy, primarily due to the funding, and then grew to include wind, bio-fuels, and sustainable building science. A recent program review revealed alumni who were well-prepared for new professions in sustainable energy project management, building control systems, sustainable architecture, energy policy, solid state chemistry and material science, as well as sustainable energy design, all with a high degree of employment success due to strong, project-heavy résumés.

In those initial meetings, we asked the question of what an academic program would look like if it grew out of Ignatian sensibilities. After significant discernment, the conversation resulted in a

program that would find its anchor in student desire, would ask a student regularly “what are you learning from your experience?”, and would revere and embrace questions. Furthermore, we were reminded that good learning goes back and looks again, education is always personal integration, and there is always more context to grasp. Finally, the teacher's role is to encounter the students' experience, and the teacher's attitude is reverence for the students and for the world. We were motivated by the words of Rainer Maria Rilke's *Letters to a Young Poet*, which encourages embracing uncertainty and doubt:

I want to beg you, as much as I can, dear sir, to be patient toward all that is unsolved in your heart and to try to *love the questions themselves* like locked rooms and like books that are written in a very foreign tongue. Do not now seek the answers, which cannot be given you because you would not be able to live them. And the point is, to live everything. *Live* the questions now. Perhaps you will then gradually, without noticing it, live along some distant day into the answer.³

With this backdrop, we developed appropriate campus infrastructure, created a project-based curriculum, forged industry partnerships and identified potential clients for engagement. When built in 2010, a joint enterprise between Creighton University and the Omaha Public Power District led to the largest solar array in Nebraska (Figure 1). Funding came from the US Department of Energy with a stimulus package grant that Creighton received for green technology. The Omaha Public Power District provided additional funding that went towards wind, geothermal, solar hot water, and additional photovoltaics systems. Furthermore, additional grant funding from the US Department of Energy went to create the associated curriculum, including new instrumentation and equipment, and the Omaha Public Power District continues to invest with an annual contribution that goes towards internships for students, continued improvements to the sustainable energy infrastructure, and advancements in equipment for undergraduate research projects in emerging photovoltaic materials. Concurrently, we identified and invited over a dozen local, regional and international

companies to join an Industry Advisory Council that has met bi-annually continually to review curriculum, assess student outcomes and meet and interact with students directly to discuss job-readiness and employment opportunities.

Concurrent with courses in Theology, Anthropology, Philosophy, History, Policy, Physics, Math, Chemistry and Communications, a common thread has students practicing project management and client engagement in the context of sustainable energy through a trajectory of courses: Installation and Maintenance of Photovoltaic Systems, Introduction to Solar Energy, and the year-long Energy Innovation course for seniors. The final course also falls on the heels of a required internship, industry electives (e.g., sustainable building science, community energy diversification, electric utilities), and a seminar in engineering. The photovoltaic trajectory includes client-interaction, beginning with on-campus facilities then moving towards outside companies and non-profits to develop sustainable energy feasibility studies.

Energy Innovation Course

The senior capstone of the Energy Technology program is the two-semester Energy Innovation course. The course resembles the amalgamation of a capstone course from engineering, management, communications and design. Above all, the course relies heavily on real client engagement, developing client-focused solutions related to sustainable energy, and discussions of motivation and mindset. For direction, we were influenced by Richard K. Miller, the founding president of Olin College of Engineering and recipient of numerous education accolades. In a 2016 whitepaper detailing the Importance of Mindset, he writes:

As important as content knowledge is, along with the skills to apply it, something else is at least as important today: the set of attitudes, behaviors and motivations that enable knowledgeable graduates to work with others productively, flourish and live a purposeful life... *A good education changes what you know, while a great education changes who you are.*⁴

Furthermore, he posits that mindset is “indeed real, definable, measurable, and teachable, and has a major impact on positive outcomes in life—across all academic disciplines and types of institutions.” Of particular interest to our specific students, we initialized our experience on the concept of a T-shaped Individual,⁵ who has both a breadth of knowledge while also having a depth of expertise. In initial course discussions following the reading of this white paper students admitted (in quotes) to being quite uncomfortable “in the field” and working with/for clients, feeling that the world “favors extroverted personalities.” On the other hand, they were encouraged that mindset could possibly be learned/modified and they had a willingness to engage in that process. Finally, a primary motivator for this course for both myself, as professor, and the students could be summarized in a student statement, “As a senior, I often feel a lack of purpose, and can find it difficult to ensure each day is a productive day. I want to get involved in the community more to drive my motivation.”



Figure 2. Energy Innovation Course Actions

To encourage this T-shaped mindset, we focused on course actions, as shown in Figure 2, that reinforced depth in students’ expertise of sustainable energy science while also expanding their breadth of knowledge through engagement/meetings and research. This was, indeed, a cyclical process where student comfort levels were tested throughout each cycle. In particular, students found client engagement to be the most daunting and, thus, that will be the focus of this praxis report. Students quickly identified four key issues when working with clients to support sustainable energy projects. 1) Why should clients listen? 2) How do you turn a no

into a yes?, 3) How do you inform an audience that is *new* to sustainability in general, sustainable energy specifically, what their options are?, 4) How do you eventually synchronize with clients? Addressing these issues required a client-focused design process that catered to student development while also enforcing empathy for clients. Given the context of being in a Jesuit institution, we were cognizant of how Jesuit pedagogy, along with IPS, could be used to support these design processes for community-based projects.

Given all this, the learning objectives of this course were, as follows: 1) Students will put into practice their design and project management knowledge and skills, 2) Students will gain experience in applying disciplinary knowledge to real and possibly ill-defined problems, 3) Students will apply skills in identifying and acquiring new knowledge, 4) Students will refine their communication skills through formal oral and written presentations to clients, 5) Students will further the development of their Ignatian paradigm through discussion and written reflection of the potential ethical considerations that may come into play in each of their various projects, and 6) Students will develop and pursue appropriate processes related to their post-graduate plans. We found that the client-focused design model was an ideal vessel to assess these learning objectives.

Client-focused Design

Our client-focused design process, as shown in Figure 3, relied on six basic steps, 1) Identify the Problem, 2) Develop Client Empathy and 3) Brainstorm. After this initial phase, we entered a cyclic process that included 4) Evaluate Ideas, 5) Optimize Ideas, and 6) Identify Solutions. Following this process, a solution was delivered to the client. These phases were developed upon review of ISO 9241-210:2019, which does not specify exact methods for each phase and was written with software development in mind. However, it was a useful guide to client engagement with technical aspects, in general.⁶

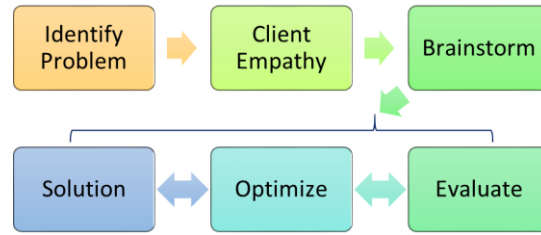


Figure 3. Client-Focused Design Process

Of interest to readers of *Jesuit Higher Education*, we found ourselves mimicking the Ignatian Pedagogical Paradigm in this design process, where we had to identify the context of the problem and the associated client, develop an idea (the what), present the ideas and optimize/reflect, take action to identify potential client-focused solutions, and finally evaluate the solutions. As this was already a comfortable pedagogical strategy for Jesuit institution-taught students, it was a natural parallel to draw from as their professor.

Students generically found the first two steps (Identify Problem and Developing Client Empathy) to be the most surprisingly challenging, the Brainstorming step to be the most fun and comfortable (although it required the most work on *their* part), and the cyclic final three phases to be the most frustrating and foreign. Student comments included “I can develop the project ALMOST to fruition but getting over that last ‘hump’ to actualization is when the project got truly difficult.” Also, “I realized that there is more than one way to effectively present information, but you always have to keep the client in mind when designing project proposals. My biggest take away from this experience is focusing on finding the problem and understanding the client instead of quickly jumping to what I believe to be the best solution.”

By utilizing this framework, the students were able to address their four key issues and realized that their fourth issue (*How do you eventually synchronize with clients?*) was, ultimately, the most prescient. In the 2018-2019 academic year, the Energy Innovation course had three primary clients/projects. These clients/projects were chosen at the discretion of the students based on

past interactions with these groups or due to intrinsic interest in the associated projects.

First, the students developed a marketing campaign for a 5 MW community solar array for our local power district (Omaha Public Power District, OPPD), which “sold out” of their 8,400 shares for the array in 49 days! OPPD has long been a sponsor of our program and this was a student-led way to “pay them back” for their continued support while gaining real-world experience in renewable energy marketing. Second, students developed a renewable energy solution, including on-site and on-campus educational elements, for the Institute for Latin American Concern (ILAC) in the Dominican Republic (including on-site experiences). The ILAC regularly hosts Creighton students for the Encuentro Dominicano program, which is an immersive, semester-long experience that focuses on service-learning, travel, and building community with fellow students and Dominicans. We ultimately engaged with ILAC because some of our students had taken part in this program, but also because they were considering the installation of a (now installed) 95-kW solar array to completely offset their electricity consumption. With on-site visits to the ILAC and the local “campos” (villages) surrounding, this became a deeply personal experience for the students.

Finally, the students developed a sustainable energy strategy for the rooftop of an in-construction facility to host the non-profit [No More Empty Pots](#) (NMEP) and their newest initiative of a Food Hub. The students had engaged previously with NMEP as a service site and felt a personal connection to the leadership and their patrons. Their mission is best summarized by their inspiring CEO, Nancy Williams:

Poverty is not just about food deserts and hunger. It's about livable wages, adequate education, meaningful connections. It's about being able to take advantage of the opportunities in front of you. It's about people engaging. You see, it's one thing to get people to food because they're hungry or they don't have access to it. It's even something more if they have access

to living wage jobs where they can then choose their food.

Pots is based in North Omaha, in recognition of its “rich cultural heritage of food and community” and concurrent “disparities in health, healthy food access, equity and economics.” “So, we wanted to make a difference there first, then catalyze a ripple effect in urban, suburban and rural spaces. We believe in the reciprocity of local food.”⁷

Upon realizing NMEP's desire for a renewable energy strategy for their new building initiative, the students quickly chose to engage. This final project will provide an illustrative example of our approach to client-focused design, following the themes of IPS, as we present a case study of our work with NMEP. As this was a single project, much of the results are anecdotal in nature. However, we hope that this pedagogical experience and subsequent student interaction will provide one potential guide to service learning in sustainability. Included are summative statements from the students as they evaluated each design phase.

No More Empty Pots Project: Background

NMEP is a grassroots non-profit corporation that connects individuals and groups to improve self-sufficiency, regional food security, and economic resilience of urban and rural communities through advocacy and action. The new build of a Food Hub was based on a system of interdependent activities including commercial kitchens, a community café, cold/dry storage, and a food systems focused incubator rooted in proven models that deliver positive outcomes in job training, workforce readiness, food waste reduction, healthy food access, income generation and business development.⁸

We initially identified that NMEP had a substantial donation income and a well-received mission within their community. They also identified a desire to be more sustainable as long as it did not significantly cut into their bottom line (good stewards of their donations) or would simply be “greenwashing.”⁹ NMEP tasked our

students with creating sustainable energy solutions for a rooftop garden area with achievable returns on investment and providing a synergy with their vision for the space. We were brought into the project as the new Food Hub was being finalized with the architect and initial construction had commenced. Thus, we had infrastructure limitations and a strict timeline. We also quickly identified that our client and the key stakeholders had limited knowledge of sustainable energy solutions, had a fluid vision of the rooftop's purpose and design constraints, and no initial solutions/ideas were proposed.

No More Empty Pots Project: Design Process

Following the steps of Figure 3, the students identified a few key issues in the Identify Phase. First, NMEP wanted to use their rooftop for a sustainable energy project but lacked any clear vision or knowledge of possibilities. Second, NMEP's energy demand during the summer months was anticipated to be near, or potentially exceed, 50-kW. Their energy provider enforces a demand charge if a commercial customer exceeds 50-kW demand. This could lead to a substantial increase in electricity costs over the sub-50-kW commercial rate. Third, their rooftop had enough space for an 8.4-kW solar array (see Figure 4) with minimal intrusion to the public areas, which would cost about \$17,000 to install. Would it be worth it? It would have a potential return on investment of 15 or 21 years, dependent on the energy provider rate (see above). Fourth, the construction schedule could not be disrupted, and any additional construction had to match and not impede the current schedule. Finally, off-grid solar energy strategies (e.g., solar-powered charging stations) could potentially address the wants and needs of the client at a lower up-front cost (but longer return on investment). Students identified that "the client's wants are often unclear, and sometimes the client doesn't know what they want."

Client Empathy became essential to identifying potential solutions. Students engaged with interviews, observations and meetings with the goal of producing "needs statements" for their client, following closely an online course entitled "Principles of Design Thinking" from AutoDesk

Academy.¹⁰ They proceeded to brainstorm ideas, based on their perceived needs of the client.



Figure 4. On-grid 8.4 kW solar energy design

In preparation for the initial stakeholder meeting to review potential solutions, the students identified five key solutions: 1) Solar-powered aquaponics for the garden area, 2) Grid-tied solar array (Figure 4), 3) Off-grid solar array for lighting and device charging, 4) Stand-alone, proprietary solar charging stations, and 5) Sustainable energy education modules for patron families. Many of these brainstormed ideas required completing hours of research and design, involving third parties to identify costs and feasibility, and engaging with new stakeholders to access additional resources. Students' personal assessment included "We learned how to better understand and identify areas for improvement in early project development."

For evaluation, the students arranged meetings with the client, the architect, the project advocate and the construction contractor (Figure 5, following page) to provide their ideas, including designs, costs, returns on investment and contingencies. This, as expected, became a cyclical process, where ideas were removed from the list only to be returned in a new form. In addition, new ideas were formed out of further conversation and a further understanding of the client and her vision. Students' remarks during this phase were summarized "The client's wants can change, our solutions may not match the client's vision, and/or construction can change plans."

As they entered the optimize phase, some early "darling" ideas were scrapped. For example, the off-grid solar array had too many potential risks of interfering with construction plans and had



Figure 5. Meetings with client, architect, project advocate, construction contractor, students and professor.

potential safety and construction code issues that led the contractor to push against the idea. In addition, client interest for solar-powered aquaponics was waning and forced the students to reevaluate their priorities. Concurrently, the prospect of a stand-alone, solar-powered charging station was of high interest. In addition, understanding the energy usage of the building to account for and potentially mitigate energy consumption to stay below the 50-kW power demand was universally appealing. One potential solution to address this was the addition of a grid-tied solar array. However, the students quickly acknowledged that holding off on promoting this plan and instead getting detailed energy monitoring for one year might identify potential inefficiencies, energy usage behaviors, or help justify the significant installation costs of an on-grid solar array. Students found that “being client-focused requires strong, effective communication between yourself and the client.”

Following three full stakeholder meetings (Figure 5), the students finally began to synchronize with the client, both learning from each other. The client learned more about her options, while the

students learned more about her desires, vision, and motivations. This empathic relationship became the catalyst for actionable solutions. In the end, we left the client with three solutions that she was willing and able to act upon. First, NMEP gave the students an \$8,000 allowance for an off-grid, stand-alone, solar-powered charging station (a solar bench in this case). They contracted with a local solar installer/electrical engineer to construct and install their design according to needed electrical codes and building standards. Next, the students wrote a successful grant proposal to their energy utility for energy monitors to be installed at the Food Hub. They finalized on the eGauge Pro¹¹ that is able to monitor each individual circuit, including individual appliances in the multiple industrial kitchens within the Food Hub. This data will be aggregated by next year’s Energy Innovations course and used to determine any possible energy inefficiencies and the potential return on investment of addressing these inefficiencies, changing user habits, or installing a grid-tied solar array. In addition, the monitored energy will be featured on a digital dashboard within the public café (Cups Café) inside the Food Hub, along with some educational slides on energy usage and solar energy. Finally, the students, in collaboration with the Nebraska Environmental Trust and the Omaha Henry Doorly Zoo, were able to provide K-6 solar energy curriculum, including many hands-on activities, to be used by families and patrons of the Food Hub. The students felt that “through client-focused problem solving, the solution can be a surprise for both the client and the design team.”

No More Empty Pots Project: Reflection and Evaluation

Following this project with NMEP, the students did a self-evaluation and reflection on their contentment with the solution as a function of time (Figure 6). In addition, they sought qualitative responses from me, as their professor/advisor for the course, on my contentment with the solution as a function of time. Finally, they evaluated their client and key stakeholders about their satisfaction with the solutions presented and how closely aligned they were with their ultimate goals and vision. This qualitative assessment is revealed in Figure 6, which shows the contentment with solution for

the student, me (their advisor) and the client over time. The vertical lines indicate key client meetings that included all major stakeholders after the initial brainstorming phase was complete. The color range for the client indicates the Identify, Empathize and Brainstorm phases in red, the Evaluation and Optimization phases in cyan, and the Solution phase in black.

As shown in Figure 6, the students came into the first meeting with a belief that they had ideal solutions for their client, following their initial phases of the client-focused design process. In hindsight, they had not yet synchronized with the client and, instead, pitched well-researched ideas that fell flat with the client. In all fairness to the

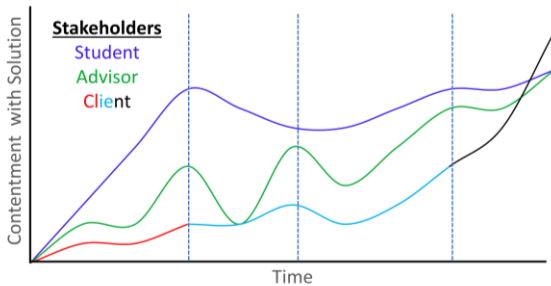


Figure 6. Contentment with Solution for the students, their professor/advisor, and their client as a function of time. Vertical dashed lines indicate stakeholder meetings. Colors as described in the text and inset legend.

students, I also thought their ideas would be better received than they were, as reflected in the figure. My contentment dropped as I became more empathic to the client following this first meeting but slowly increased to merge with the students as the second meeting loomed. Once again, the various stakeholders were not yet in sync during this meeting and contentment dropped for both me and the client. However, the students learned some critical pieces to the overall vision of their client. As a result, their contentment continued to grow throughout the remainder of the project, knowing they were headed in the right direction. As advisor, I found myself somewhere between the student and client.

As time moved forward into the third and final meeting, the client’s contentment began to merge with the students and me. Following the third meeting, the students had fully synchronized with the client and knew how to enact their vision. In fact, in the following weeks, as the students

entered the implementation phase, the client’s contentment likely exceeded that of the students and me. This is primarily due to the loss of “darling” ideas along the way that the students and I assumed would be better received by the client. The client, however, was fully content with the delivered solutions and was pleased with the synchronization process.

As advisor for this course project, I was pleased that we successfully provided several solutions that could be put into action that will positively impact energy consumption and production in our community. As a class, we were excited to provide education materials for further outreach into the community. Finally, the project was left open such that future classes could engage with NMEP and potentially enhance our deliverables or introduce new ideas based on the monitored energy data.

By engaging with the students following this project, I was able to collect summative evaluations. One student reflected “It was definitely a learning experience that highlighted the importance of client focused thinking. I talked about this project in a recent job interview [which ultimately offered him a position] and believe it added a lot of substance when I was describing this project-based degree. Overall, I thought it was a meaningful project that certainly has given me a story to tell in the job hunt. I thought the team worked well together and ended up with the best solution for our client.” Another student indicated some of their surprise with client-focused thinking. “I did not believe that the project was going to take as long as it did. I thought that we would provide our insight, draft a proposal, and submit it within a month or two. It was actually a nice change of pace to have a series of meetings where we discussed the project, provided updates, and received feedback about our ideas.”

In reviewing the course learning objectives during assessment a few revelations emerged. Most notably, students were energized and excited to put their design and project management skills into practice with real clients. This supported their intrinsic motivation, encouraged them to take action on ill-defined problems, repeatedly forced them to engage in oral and written dialogue with clients and me, and all could see how these skills

related to their specific post-graduate plans. Of particular note was one of ethical considerations, which became a mantra of “do no harm” when working with clients. The students and I had to understand our limitations and ensure that we were not doing harm by encouraging an inappropriate solution but also to not discourage a solution that a professional may have suggested. This was likely the most difficult component for me as the instructor, but also made the students most nervous. To prepare, we spoke with professionals working in the non-profit sector and read on energy ethics.¹² We also regularly brought in professionals to review our approach and ensure we were offering our clients the most appropriate solutions without burdening them. In speaking with alumni of past Energy Innovation courses, most all indicate that this experience had a positive effect and informed them on their future choices for employment or provided useful tools to prepare for employment as well as lifestyle and client engagement. In addition, we are convinced that this client-focused, IPS approach has had an impact in ensuring that our community makes more sustainable choices concerning energy. Historically for this course, this includes the planning and installation of various solar arrays (up to 5-MW), electrical monitoring for energy efficiency, energy auditing, and international assistance efforts.

Conclusion

Although envisioned ahead of the creation of IPS,¹³ this course followed its vision and themes quite strongly. We focused strongly on experiential learning, with humility, in our community to

encourage action. We demonstrated to our students the importance of empathy when engaging with the community to synchronize interests with the end goal of more sustainable decisions. The students found that this is not a natural, or trivial, thing to accomplish. However, if we are to carry out Pope Francis’s call to care for creation and prioritize the needs of the poor and vulnerable that have been damaged by environmental harm, then experiences like the ones described here are a necessary pre-requisite to enable them to be change-makers following graduation. We all have students with a passion for action, and these pedagogical strategies can serve as a guide to focus that passion towards actionable improvements in sustainability. Although we cannot fully quantify the impact of this course over its five years of implementation, sustainable energy solutions being thoughtfully deployed in Nigeria, Tanzania, and here in Nebraska serve as witness. Furthermore, recent graduates are now employed in the public (e.g., White House’s Office of Management and Budget – Program Examiner, Energy) and private (e.g., FirstSolar, Project Developer) sectors, assisting with energy policy decisions or sustainable energy deployment for the United States and abroad. Furthermore, IPS is now a metric we can employ to improve the efficacy of our teaching and pedagogical strategies concerning sustainability. We hope that this case study serves to inspire readers to engage their students with the community in a client-focused way, to expose them to the challenges and the promises of promoting sustainable awareness in the context of Jesuit Pedagogy and Ignatian Pedagogy for Sustainability. HJE

Notes

¹ Francis, *Laudato Si’, Encyclical Letter* (Vatican City, Italy: Libreria Editrice Vaticana, 2015), accessed July 8, 2019, http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_ enciclica-laudato-si.html

² James Leighter and Kathleen Smythe, “Ignatian Pedagogy for Sustainability: An Overview,” *Jesuit Higher Education: A Journal* 8, no.1 (2019).

³ Rainer Maria Rilke and Franz Xaver Kappus, *Letters to a Young Poet* (New York: Norton, 1954).

⁴ Richard K. Miller, *The Importance of Mindset* (Olin College of Engineering, 2016), accessed July 8, 2019,

http://www.olin.edu/sites/default/files/oct_16_white_paper-the_importance_of_mindset1.pdf

⁵ Ransom Patterson, “The T-Shaped Person: Building Deep Expertise AND a Wide Knowledge Base,” accessed July 8, 2019, <https://collegeinfo geek.com/become-t-shaped-person/>

⁶ “ISO 9241-210:2019 Ergonomics of Human-System Interaction—Part 210: Human-Centred Design for Interactive Systems,” *Ergonomics of Human-System Interaction*, last modified July 1, 2019, <https://www.iso.org/standard/52075.html>

⁷ “A Systems Approach to Addressing Food Insecurity,” *TheReader*, accessed October 10, 2019,

<https://thereader.com/news/a-systems-approach-to-addressing-food-insecurity>.

⁸ “Collaborative Community Centered Food Hub – No More Empty Pots,” No More Empty Pots, accessed July 8, 2019, <https://www.nmepomaha.org/>.

⁹ Jim Motavalli, “A History of Greenwashing: How Dirty Towels Impacted the Green Movement,” AOL.com, last modified February 12, 2011, <https://www.aol.com/2011/02/12/the-history-of-greenwashing-how-dirty-towels-impacted-the-green/>.

¹⁰ Libby Falck, “Principles of Design Thinking,” AutoDesk Design Academy, accessed July 8, 2019,

<https://academy.autodesk.com/course/122979/principles-design-thinking>

¹¹ “Energy Metering Systems – eGauge,” eGauge, accessed July 8, 2019, <https://www.egauge.net/>.

¹² Erin Lothes Biviano, David Cloutier, Elaine Padilla, Christiana Z. Peppard, Jame Schaefer, “Catholic Moral Traditions and Energy Ethics for the Twenty-First Century,” *Journal of Moral Theology* 5, no. 2 (2016).

¹³ Leighter and Smythe, “Ignatian Pedagogy for Sustainability: An Overview.”