Puerto Rico Project Center:

Analyzing the Past to Inform the Future

Final Report

Authors Sergio Dominguez, Harrison James, Chris Mercer, and Ilyas Salhi

Advisors: Professor John-Michael Davis and Professor Hektor Kashuri

Sponsor: Lauren Mathews

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ABSTRACT

Over 30 years of operation, the Puerto Rico Project Center (PRPC) has partnered with more than 40 sponsor organizations to complete Interactive Qualifying Projects (IQPs). A sponsor represents the biggest variable for student experience. Our project evaluated past IQPs and sponsors, along with Non-Government Organizations (NGOs) in Puerto Rico to generate sponsor leads. This data was displayed in a website that organized sponsors by distance, programmatic foci, and assets as well as targeted materials for automating sponsor contact. In addition, we identified guidelines to improve sponsor-student relationships through a survey and interviews with PRPC student alumni.

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AUTHORSHIP

Ilyas Salhi

Wrote the abstract, led the results section, and was a main contributor to the executive summary, methods, deliverables, results, and conclusion.

Harrison James

Was a main contributor to the executive summary, introduction, methods, and wrote the conclusion and Puerto Rico Project Center background section.

Chris Mercer

Was a main contributor to the executive summary, introduction, methods, and conclusion, and wrote the Study Abroad background section.

Sergio Dominguez

Was a main contributor to the executive summary, introduction, methods, and conclusion, and wrote the Project-Based Learning background section.

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Executive Summary

Study abroad comes in many forms, but one of interest, especially in the context of Worcester Polytechnic Institute (WPI), is service learning. Service learning combines the experience of being immersed in another culture with project-based learning, and at WPI one flagship program that incorporates both service and project-based learning is the Interactive Qualifying Project (IQP).

One of the most influential components of IQPs is the sponsor-student relationship, and one facet that project centers could improve on is identifying effective sponsors. Project centers operate as hubs for IQPs to be sponsored by local organizations for students and faculty from WPI to develop new solutions to problems within the community. Sponsors have the strongest voice on what the objectives of the project are and set their expectations for end goals. Knowing that sponsors have this much of an impact on IQPs speaks to the importance of a systematic process for choosing what sponsors the project center should work with. This project's goal is to identify traits of successful Puerto Rico Project Center (PRPC) sponsors and identify new potential sponsors who share similar characteristics to help inform the center's direction and partner acquisition.

Methods

To achieve this goal, we analyzed past IQPs to take a macro look at the project center's history, alongside an exploration of Internal Revenue Service (IRS) 990 tax form data of Non-Government Organizations (NGOs) in Puerto Rico. This, in turn, was combined with PRPC alumni interviews to create guidelines for optimal student-sponsor relations for the center. Besides these guidelines, other deliverables were made such as: a filtered list of NGOs, an analysis of NGO locations, and promotional materials in the form of a website/pamphlet to improve response rate of sponsor leads.

The goal of analyzing the PRPC's IQP trends was to create a complete list of IQP projects and visualize the changes between them year to year to achieve a better understanding of the current state of the center's efforts. Past IQP reports give a complete history of what students have worked on and their sponsor. These reports were compiled, and their given metrics, such as an amount of projects within a thematic category or how much that category grew within a year, graphed to provide a historic view of the PRPC's past.

The goal of conducting surveys on alumni and sponsors was to give guidelines on how to improve student and sponsor relationships and identify circumstances of positive and negative sponsor experiences to consider when finding potential new sponsors or reinforce current sponsors. A list of names was formed from the authors on each past student report. With administrative help, Interdisciplinary and Global Studies Department (IGSD) staff provided email addresses to these alumni to send out the online survey forms. These surveys led to 22 responses, 11 contacts, and 9 successful virtual interviews about student experience.

The goal of conducting an analysis on IRS data was to identify all potential new sponsors, assign categories to them, and give useful information for consideration of prospective partners. Nonprofits in the United States are required to submit a 990 form outlining their spending, field of work, and addresses, among other things. We pulled in a form for every organization in Puerto Rico and used them to create a list of filtered sponsors based on distance, programmatic focus, and asset amount.

Key Findings/Outputs

The end deliverables produced are informed by key findings in three major areas, 1) Identifying the breadth & depth of the PRPC's efforts, 2) Develop sponsor guidelines and promote the Puerto Rico Project Center, 3) Determine the pressing needs of Puerto Rico. These are described below.

An unsurprising finding, given the background of the previous project center director, environmental sustainability is one of the major themes that dominates a number of projects. However, there are projects that show precedent working in other themes. This means that when

looking through potential sponsors, the administration of the center should not feel daunted with the idea of working outside of Environmental Sustainability/Conservation. In the center's history the Department of Natural and Environmental Resources (DNER) dominates when it comes to the number of projects sponsored. Because setting up new relations has a level of uncertainty, it makes sense for the center to feel comfortable when working with the successful and repeat sponsors. This attributes to the skewed distribution of project themes towards environment themes.

Students feel more at ease with attention and communication with their sponsors, this is further indicated by the results from the one-on-one interviews conducted with the students afterward. Connections outside work also seemed to affect sentiment towards other questions. Students that enjoyed being with their sponsors saw negative aspects of their experiences in a more positive light (challenges rather than problems). Negative experiences also came from a difference between expectations and reality. The group also focused on trying to see how confident the students were of their projects being implemented. However, students rarely check to see whether their projects are applied after leaving, so there was no conceivable way to track this remotely.

There is a wide spread of sponsor types across industry sectors in Puerto Rico. By widening the scope to other types of sponsors, the center can increase the diversity of its work, and better align with Puerto Rican needs. We determined the current pressing needs of Puerto Rico by the size and funding of the sector. The IRS nonprofit database can be used to effectively find sponsors that may work well with the project center. It is time saving and more exhaustive than a simple internet search or using word of mouth.

Recommendations and Justification

These major findings culminate into a list of recommendations for the PRPC to consider moving forward. First and foremost, when establishing relations with sponsoring organizations, it is important to ensure understanding and expectations when it comes to communication with IQP students. From our findings, communication and properly defined projects from the start

prove most successful for both sponsoring organizations and students. Another recommendation includes avoiding sponsoring organizations which require long commutes. Students who had to travel significant periods of time had less motivation for their project and did not go to their project site every day. We also chose to include reaching out to organizations in the fields of Education, Human Services, Healthcare and Arts, Culture & Humanities. Based on the highest number of nonprofits and most assets belonging in these categories, these show Puerto Rico's main focus and most pressing problems and are worth investigating. This is further beneficial for the PRPC as their main focus has been on Environment/Sustainability allowing room for diversification of the project center's work.

Introduction

In order to apply student skills and help address Puerto Rico's issues, Worcester Polytechnic Institute (WPI) established a project center in San Juan, Puerto Rico. In the nearly 30 years since the Puerto Rico Project Center (PRPC) was established, radical changes have taken place throughout the island. Over the last decade, Puerto Rico has experienced an economic recession, hurricanes, and earthquakes. These unfortunate circumstances have left the island's population in a rapidly decreasing state with a high emigration rate of -31.4 persons per 1,000 between 2010 and 2015. This compares to the mainland US at a positive migration rate of 2.9 persons per 1,000. (World Population Prospects, n.d.). This population shift shows the evolving state of Puerto Rico, not only in the people that reside there, but also the problems they face. Despite these pressing needs, no formal assessment of the center's work and its effectiveness has been conducted. An assessment of the project center is important to understand the weaknesses, history, and trends of the program.

Previous studies at the Washington DC, London England, and Melbourne Australia project centers have been conducted. However, these assessments focused mainly on assessing the student experience from their IQP. While student experience is important, previous research methods for assessment did not emphasize the utilization or long-lasting effects of the work done on the sponsors and community. There are no reports surrounding the history of the various project centers and the past work they have conducted. This project aids future generations of students by creating guidelines of how to run a successful project, how to interact with a sponsor, and how to go about finding new leads for sponsors. Reaching out to past alumni allows for an understanding of the areas students succeed or struggle with. In addition, it identifies gaps in sectors students could be working. This further opens opportunities to acquire quality sponsors and target new projects that will increase the likelihood of having positive impacts on both sponsors, the community, and students. Using the PRPC as a proof of concept creates an opportunity for the development of a more comprehensive assessment method for all project centers.

The assessment of the PRPC will produce a set of recommendations and strategies for the future, identify addressable weaknesses of the project center and new potential sponsors in sectors the center can consider branching out to. Currently, the project center's main focus combats issues in the environmental-sustainability sector. However, given the recent changes in Puerto Rico, recommendations can be formed to maximize positive impact on students, sponsors, and the Puerto Rican community to broaden its reach.

In order to develop a more comprehensive project center assessment, project themes for the PRPC's work were graphed by year to better understand the history of the project center. This research aims to identify methods of determining the long-lasting effects and utilization of projects by sponsors and organizations, while offering an analysis and recommendation method that brings value to other project centers at WPI. Along with the history of the project center, trends and changes in humanitarian and nonprofit efforts are pulled from a document analysis of various public tax and government records. Collecting and studying this data provides a way to find potential sponsors by theme or area of interest for future project center growth. In doing this, we developed a clear picture of not only the current state of Puerto Rico and the project center, but also of its future.

In what follows, we first give insight into project centers, the necessity of the research, and identify potential sectors the project center should investigate for student work. This begins with a brief history, discussion of challenges, and considerations for a positive study abroad experience, followed by a discussion and identification of the Project Based Learning (PBL) process, and ending with an identification of pressing issues and justification for the research. The research methods then follow this background, detailing the analysis of the PRPC's past project themes, develop guidelines for promoting the PRPC, and compile a list of ideal sponsors the project center should investigate.

Background

Study Abroad: Challenges and Considerations

Appropriately, the term 'study abroad' has *a broad* definition. The everyday use of the phrase varies significantly, and the subject of study differs by program and school. In some instances, study students and program directors define the main goal as a richer cultural understanding. In other programs, the intent of the program comes with strict academic guidelines, all the way down to course numbers a student needs to register with. This is to say that study abroad differs significantly from program to program, with important distinctions between each type of program. This section explores how study abroad programs differ in size, duration, academics, and culture, and the most valuable takeaways students get from each. While WPI is certainly a leader in its study abroad program, there is still much that can be learned from other institutions.

Each college places a different weight on the importance of its study abroad programs. Most do not require students to complete a study abroad program to graduate. Just like taking summer classes at a different university and transferring the credits, some students take the same classes they would at their own school, only somewhere outside the home country. Normally, the student's own school, a different school, or an entirely separate corporation that focuses on providing study abroad experiences organizes the program. These programs usually partner with a higher education school abroad and send students to classes while also providing housing and food. Students may rotate where they live, so the emphasis is less on the classes, and more on the experience of living in a foreign place. Some programs rotate where students live to emphasize the experience of living in a foreign place over classes and academics. For example, Syracuse University places study abroad students with a family and serves them three home-cooked meals daily. Halfway through their 14 weeks abroad, students change host families and experience living in a new city (Syracuse University, n.d.). Nearly every interaction involves residents, providing students with an intimate understanding of local life. Academically speaking, the

students took the same course credits comparatively to spending the semester in their own college.

Some programs implement 'service-learning', a type of study abroad in which students must complete a relatively large task that provides some sort of benefit for the local community. Students produce physical objects like water filters, or concepts like a new legal process for the local government. Service-learning extends beyond doing just community service abroad. It places more emphasis on the student's educational interests and goes past just doing miscellaneous work for the community. In a 2000 study called *How Service Learning Affects Students*, researchers found that service-learning facilitates four kinds of outcomes, "an increased sense of personal efficacy, an increased awareness of the world, an increased awareness of one's personal values, and increased engagement in the classroom experience," (Astin, 2000). These benefits apply to both the student and the area being serviced. This paper also mentions the importance of student choice when conducting a student project. If students get to pick the topic and steer the direction of the project, they are more likely to be interested in the work. Service-learning results in a better project while also benefiting the student's education.

In the context of WPI, the school leans towards the service-learning method of conducting study abroad, because the program incorporates its project-based learning philosophy, a key aspect of the WPI Plan. This plan, implemented in 1970, focused on six areas: passion, learning to learn, project-based learning, global immersion, beyond the classroom, and personal impact, (WPI, n.d.). This means that WPI students generally go into their study abroad with some project experience beforehand, making service-learning an easier transition. When compared to living with people native to the area, this implementation of study abroad seems to lack the same level of cultural immersion. However, students still receive some of that experience through other activities. For example, students typically work with a member of the local area in a more intimate setting outside the classroom. The hallmarks of a good program expose students to formal and informal social interactions, which increases their cultural awareness, Parkinson (2007) explains that students need context about their surroundings to create effective change. For example, if a student does not understand the end user of their project, they will build it with the wrong assumptions. This emphasizes the importance of

background research before executing a project, exemplified by WPI's requirement of preoperational classes before IQP. Another facet of service-learning, Project-Based Learning (McMaster, n.d.), is nuanced and difficult to perfect since it is not well defined and standardized. Often, since study abroad is not traditionally dependent on PBL, combining the two becomes a unique challenge without much history to learn from. However, a good implementation of PBL is a major factor on a student's enjoyment of a WPI study abroad program.

Project-Based Learning

Students learn through visual, oral, physical, logical, social, and/or solitary means. In response to varying methods of learning, teachers develop corresponding techniques to accommodate student learning. The most used technique, traditional lecture and recitation, accommodates students who learn through audible means. Bossard (1931) states, the benefits of the traditional teaching method lies in the ability to teach the greatest number of students at a given time. Because of this benefit, traditional teaching methods remained unchanged in most American educational institutions. The evidence can be shown as many large educational institutions have a lecture room where a professor lectures to many students. However, this procedure comes with disadvantages as Bossard expresses that the traditional style may not give students a deep understanding of course material and doesn't necessarily provide students motivation to pursue further education. Students with short attention spans or those that struggle with learning through audible means, also struggle to learn through traditional lectures. Traditional lectures turn the students into passive bystanders instead of active learners. A study researching lectures effectiveness through student perspectives found that a student's lack of prior knowledge, lecture pacing, and individual learning styles, partially contributes to lower attendance rates, (Petrovic, 2012). Fortunately, not all educational institutions implement just one teaching module into their curriculum.

Project Based Learning introduces an innovative and complementary method of teaching. PBLWorks, an organization dedicated to helping schools create PBL based curriculum, defines PBL as "a model for classroom activity that shifts away from teacher-centered instruction and emphasizes student-centered projects" (Research Spotlight on Project-Based Learning., n.d.).

Bell (2010) states that students learn through collaborative research and project teamwork can improve their communication and technological skills, while becoming advanced problem solvers. Jones' (2006) further breaks down PBL into separate elements with the acronym, "PROBLEMS ": Problems, Resources, Objectives, Behavior, Learning, Examples, Motivation, and Self-directed learning and self-assessment. Students must engage in self-assessment in order to continue their professional development throughout their personal life. From there, students would develop a behavior that would be similar to an expert in which they wouldn't be over reliant on other students or the instructor. Students also need a problem with a specific focus to effectively learn and practice from. In PBL, the instructor focuses on developing objectives to direct students and use examples to stimulate higher cognitive skills and motivation. PBL also promotes and enhances students' abilities in team environments, giving students skills to aid them in future projects. PBL has been highly regarded by many, but there are some finer details that require further work for the instructor.

Although PBL's benefits help it stand out from the traditional style, it also comes with disadvantages when applied. For an instructor to evaluate a student's work, the use of standardized tests is no longer an option. Teachers struggle to grade students' work because of the need to design a rubric for each individual project to measure the student's performance, making the process time-consuming. Team projects introduce another difficulty with grading PBL work since students need individual grades and the instructor must gauge how much each student contributed. Bell (2010) conveys a possible solution stating that students need to reflect on the group dynamic and success of the team. The instructor can then utilize these reflections to distribute credit fairly. However, the period of time it takes to conduct reflections, along with motivating students to perform the assessments introduces a challenging point for PBL. Mills (2003) states for a successful introduction of PBL to a program, the school needs full participation from both the faculty and students of the institution. Just like any other teaching method, instructors need to put in the time and effort to properly develop effective programs and projects for the system to work. In spite of PBL's disadvantages, many organizations find ways of avoiding these pitfalls to make a program that includes more student involvement.

Since its introduction into higher education around the 1960s, institutions continue to implement different PBL methods to add more active learning to the classroom. McMaster University, a public research university in Canada, pioneered the implementation of PBL in higher education. Shortly after McMaster developed its new curriculum, other medical schools in Europe and Australia designed or redesigned their courses to incorporate a PBL approach. Students in McMaster, placed in small groups, studied medicine by working with a simulated patient, adding a facet of real-world experience to instruction (McMaster, n.d.). The projects centered around using rigorous learning objectives while trying to solve a problem with the patient. Jones' (2006) research gave evidence to the effectiveness of PBL, showing that it helped in training anaesthesia and intensive care specialists giving novice students skills in medical reasoning. Experts in this field gain the ability to compare novel scenarios with their past experiences. By supplementing traditional classroom instruction with experience, students see a stronger connection between their education and work later on in their professional career.

WPI also implements PBL in its curriculum. The college defines PBL in the WPI Plan, a philosophy developed to give instructors an educational model for undergraduates in response to students desire to apply knowledge learned in courses. The school applies PBL to courses, study abroad, and student capstone projects. WPI's implementation of PBL focuses on students taking the skills and concepts learned from the classroom to make solutions to real problems. According to WPI, PBL gives students tangible experience and world perspectives (n.d.). Beginning in the 1960s, WPI's plan pushed for elements absent within the traditional methods of higher education, including the pursuit of passion, personal impact, support beyond the classroom, global immersion, and the ability to continue learning.

A part of WPI's PBL system includes implementing an IQP, a degree requirement which forces students to dedicate a whole unit of coursework to a single project as a group. A typical IQP group consists of four students with varied backgrounds that all strive to apply what they have learned to a term-long project for a specific community. These projects are often a combination between social sciences/human needs with science/technology, where the students have to set the problem and develop a solution.

Students take a class called ID2050 on top of their normal classes in order to prepare for the term long project. During ID2050, students learn all the skills needed to further their background research, field research, and develop a solution. These groups try to apply their knowledge in order to resolve an issue while expanding a global perspective. Following the prep class, students work directly with the sponsor in the designated area to develop a solution for the local problem introduced to them prior to their project work.

The projects can be either done on campus or off campus at a designated project center. Project centers normally oversee and host these projects that pertain to current local issues, whether it is related to a natural disaster or improvement on a record-keeping system at a library. Currently, 40 project centers exist in many other countries, one of which being the San Juan, Puerto Rico Project Center.

Puerto Rico Project Center

WPI established the PRPC in 1992, making it one of the oldest project centers in the school. Over the last 28 years, the center hosted students and projects without interruption, with the exception of 2017 and 2018 following hurricanes Irma and Maria. Currently, the project center allocates most of its research projects towards researching environmental sustainability on the island, coming from the previous Project Center Director Susan Vernon-Gerstenfeld's background and interests. These projects run in conjunction with long-standing nonprofits or government agency sponsors; some of which include the United States Forest Service, Department of Natural and Environmental Resources, and Para la Naturaleza (Conservation Trust), along with many others.

To date, no student project group has identified trends and outcomes of the project center's history. An appraisal may help identify both shortcomings and successes of the center, enabling development of recommendations for a project center's future. For students to experience and learn from the full potential of the IQP, and for sponsors and communities to reap the benefits of quality work by students, the center could benefit from an analysis and recommendations for the future. The absence of an assessment and the project center's directive on environmental sustainability, leaves room for exploration in other sectors where the center's

hosted projects could prove useful. This exploration becomes even more pressing when considering the recent changes in Puerto Rico.

One of these sectors includes Puerto Rico's economy. Since the 1950s, Puerto Rico's economy remained relatively stable due to a Federal contributory program, providing tax breaks for US corporations operating in Puerto Rico. The tax breaks powered the manufacturing industry of the island and made Puerto Rico an important destination for US investment. The stark change in Puerto Rico's economy happened in 2006, when the federal government shut down the program providing tax breaks for US corporations operating in Puerto Rico. Only three years later, Puerto Rico declared a fiscal state of emergency and by 2014 Puerto Rico's public debt skyrocketed to $72 billion. The removal of tax preferences corresponded with a recession, continuing to this day (Kishore, 2018). To put the severity of the economic change in perspective, the per capita income estimate, as of 2017, is approximately two-thirds of the United States', along with an estimated unemployment rate of 10.8% compared to 4.1% in the US. By 2015, roughly 1.6 million citizens fell below the poverty line (46% of the population) and researchers expect poverty rates spiked to over 52.3% after Hurricane Maria (Kishore, 2018). IQPs bring a modest potential to impact the economic sector, through the promotion of businesses, tourism, or by establishing renewable energies to lower energy costs. Conducting an investigation of possible work in these sectors allows for recommendations of the project center's future.

Puerto Rico also struggles to control the housing market, another area experiencing great change. In constant flux, housing ownership significantly decreased because of Puerto Rico's recession. From 2006-2016, homeownership decreased by 11% with a corresponding rise of rentership by 13% leaving Puerto Rico with 1.57 million homes, but with 326,000 of those homes vacant as of 2015 (Benach, 2019). The lack of availability of legally built homes contributes to the proportionally high number of vacancies. More than half of home constructions in Puerto Rico reside informally in flood zones or on unstable slopes. The relevance of these illegal homes became significantly more prevalent after Hurricane Maria caused damage to over 250,000 homes and destroyed 70,000 more, most of which were built in flood zones (Benach, 2019). Though already being tackled by NGOs and local governments, the

PRPC can expand upon past work. Future projects could include informing the public and builders on the locations of safe homes and land to build on, or determining how to utilize the vacant properties.

One significant issue Puerto Rico faces regards the fragility of the island's agricultural system. Puerto Rico's poor agriculture system stems from the Marine Merchant Act of 1920 (The Jones Act). The act states "transportation of goods by sea between ports in the US must be done using US-built and owned ships crewed by US nationals" (Benach, 2019). This significantly increases food and energy costs for Puerto Rico mainly due to the island's reliance on imported foods. To put this dependence in perspective, the GDP composition by sector for Puerto Rico held Industry at 50%, Services at 49.1% and Agriculture at 0.8% as of 2017 (Félix, n.d). The imperialistic prioritization of exported crops rather than local food supply for the island created a relatively small focus on agriculture and local food supply, (Central Intelligence Agency, 2020). The import of over 85% of Puerto Rico's food supply comes from the underutilization of arable land, making the island extremely vulnerable when natural disasters occur. IQPs may provide assistance in this sector, educating the population of communal farming or local gardening, helping to modestly alleviate the island's dependence on imported goods. In fact, the PRPC already began work in this sector, conducting an IQP on Food Self-Sufficiency; though already tackled, the center can expand upon the good work.

Finally, the health industry is one of the fastest changing and greatest challenges in Puerto Rico. To put the crisis of the sector in perspective, in relation to other US states and territories, Puerto Rico holds the highest rates of HIV, premature births, and especially struggled with the Zika virus epidemic (Rodríguez-Díaz, 2017). With limited disaster and public health relief, hurricanes Irma and Maria led to a rise in infectious diseases, lack of clean water, and malnutrition. Researchers estimated these disasters also caused post-traumatic stress to the inhabitants of the island, especially the youth. In a survey study on over 95,000 Puerto Rican students, 7.2% of the students, reported clinically significant symptoms of post-traumatic stress disorder (Orengo-Aguayo, 2019). Over 40% of these students saw their houses damaged and approximately 30% experienced food and water shortages. An over dependence on imported goods and a lack of local agriculture supply due to destruction of the island's ports following the

hurricanes likely exacerbated the food shortages. Although officials reported 64 deaths related to the hurricanes, researchers projected that 4,645 excess deaths occurred during this time period with a third of the deaths being a result of delayed or interrupted health care (Kishore, 2018). Future IQPs bring the potential for providing disaster relief plans, sustainable methods for acquiring clean water, and improving sanitation.

Since the opening of the PRPC, Puerto Rico's state has greatly changed due to the conglomeration of economic turmoil, natural disasters, public health, and agricultural fragility. From all of the work conducted by the center in the last three decades, research from IQP's generated data can help inform the project center's decisions. Going through the data will help our group understand the scope and type of the center's work overtime. The gaps in knowledge currently faced include the lack of a comprehensive investigation on macro trends with nonprofits in Puerto Rico, and an analysis of IQP trends in the center's history.

The purpose of this project is to take a macro look at past data and identify trends of successful sponsors from the project center's history to help inform the center's direction and partner identification. Specifically, the team will explore these research questions:

- How has the project center's project themes and sponsors changed over time?
- What are the qualities of a good sponsor in Puerto Rico?
- How have the areas that Puerto Rican organizations are addressing changed over time?
- What new sponsors should the project center consider for new projects?
- What evidence shows that WPI projects have lasting results?

The motivation behind these research questions is to identify trends and outcomes of the project center's history and identify the effects of the PRPC's work. This project hopes to identify vital information on sponsors and sectors the center should be allocating its assets towards. Objectives of this research project aim to answer the research questions by analyzing IQP reports in WPI's Gordon Library Database, collecting data from IRS tax documents, gathering primary information on projects from sponsors and students, and identifying potential and impactful sponsors.

Methodology

Introduction

To achieve goal of this project, we analyzed past IQPs to take a macro look at the project center's history, alongside an exploration of IRS 990 tax form data of NGOs in Puerto Rico. The objectives include:

1. Identify the Breadth & Depth of the Puerto Rico Project Center's Efforts
2. Develop Guidelines and Promoting the Puerto Rico Project Center
3. Determine the Pressing Needs of Puerto Rico

Objectives

Identify the Breadth & Depth of the Puerto Rico Project Center's Efforts

The goal of analyzing the PRPC's IQP trends was to create a complete list of IQPs and visualize the changes between them year to year to achieve a better understanding of the current state of the center's efforts. While studying the student population of the project center (objective 2) served to take a micro analysis on student experience, identifying the scope of the center's work took a macro analysis, giving the team a look at large scale changes in the work students do and the logistical details surrounding their projects. We collected data pertaining to projects every year, these being IQP advisor, sponsor, abstract, data, and content. Once charted, the team used the data to identify metrics such as themes of work that the center should look at, engagement levels with published work, and commonalities between IQPs.

Because WPI facilities shut down with the COVID19 pandemic, we could not access records from the inception of the center. Fortunately, the WPI Library, since 1999, has digitized records of past project reports. These are extensive records following a consistent format, with Advisor, Sponsor, Abstract, Data, Usage Score, and Content. This is why a computer program was developed to pull the data from each field quickly.

We wrote a computer program using python and selenium to automate the process of pulling in data from the Gordon Library database into a single spreadsheet. This software included a loop with elements from HTML tags to grab, and rapidly visited each entry for a past project and automatically copied over the details into the corresponding column.

The team took a closer look at each report's abstract in the aforementioned spreadsheet, labeling each with multiple 'tags' that described the overall nature of the work because IQP reports are vaguely categorized. The team inductively determined tags of project theme and implementation while reviewing each report because the team could not anticipate what tags would fit each paper. The team analyzed the frequency of these tags by year to identify the nature of the PRPC over time. This method allowed for a more comprehensive look at the history of the center and past projects because this objective focused on past project details.

To organize this data, analytics and visualizations were created for:

- Number of students completing IQP's over time
- A list of repeat sponsors ranked by number of projects completed
- Distribution of themes and type of projects, and change over time if any
- Engagement level of different projects

Develop Guidelines and Promoting the Puerto Rico Project Center

By exploring student and sponsor sentiment between each other, the team assisted in guiding and promoting the center through choosing new potential sponsors that characteristically gave positive outcomes. The goal was to acquire student experiences to identify guidelines to improve project success and enable new methods of establishing relations with potential sponsors.

To acquire information on student experience, the team conducted surveys (see Appendix A), and semi-structured interviews on ten PRPC alumni, (see Appendix B). Utilizing WPI's Alumni Office, we were able to attain the alumni contact information. The interview focused on what aspects the alumni did and did not like about their project, what deliverables came of their projects, and what alumni learned from the experience. When listing these likes/dislikes, the researchers further probed for which attributes of the sponsor seemed to cause that sentiment. The alumni may have liked the project and not the sponsor, or vice versa. The researchers asked questions to distinguish between these two underlying reasons. At the end of the interviews, students were asked if they could volunteer any media from their experiences which would later be used with their responses in the creation of promotional materials for the center.

The team collected data on the sponsor sentiment by combining data from surveys on project sponsors, (see Appendix C), and interviews and surveys on PRPC alumni. This includes current and past sponsors. To collect contact information, the group scanned reports for liaisons from each project. After creating a list of names, we reached out to the local coordinator to find contact information. We endeavored to fill any holes in the list by reaching out online through

social media, such as LinkedIn. The contents of the survey included open-ended questions about what deliverables came of sponsored projects and if the deliverables were utilized.

Surveys were an optimal method for acquiring student experience data. This is because surveys are inexpensive, easy, and give reproducible outcomes. Surveys also gave the group an accurate representation of the entire population of the PRPC alumni base, which was important as the population was too vast to reach by other methods. Interviews, on the other hand allowed us to ask probing questions to acquire necessary information if the alumni did not give a satisfactory answer. The semi-structured aspect of the interviews gave the group creativity to slightly modify questions to get satisfactory responses.

The group hoped that surveys would boast better results than interviews, because it seemed unlikely that they could interview a significant enough sample of sponsors remotely through video conference for any analysis. Data, from surveys with sponsors, was to be analyzed by inducting codes and themes for each question upon reviewing. The main questions analyzed were regards to what, if any, long-lasting impacts student work had on the sponsors or community. These impacts were to include deliverables, data, or publications that were utilized.

However, after the group saw little to no survey responses (only one liaison filled out the survey requested), we instead used the initialized contact to reach out to sponsors asking where they are working right now in the hopes that new employers are good potential sponsors. The group also had some challenges with administering interviews with alumni. The team encountered difficulties including acquiring contact from participants and non-response/response bias from questions, evidenced in the results. This was because some alumni lost access to their WPI email accounts, or simply no longer observed them.

From these interviews and surveys, guidelines were created for the project center. These guidelines were made from condensing lessons and critiques from students. Utilizing the data from this method and the last, promotional materials for the PRPC were also developed. The information that was presented included: what long-lasting impacts the project center had on sponsoring organizations, key example projects, and student testimonials. These promotional materials came in the form of a pamphlet implemented in: a pdf, HTML email, and Facebook page to be used for assistance in acquisition of potential sponsors the project center has interest

in. To make the promotional materials more targeted, 11 were made for each project category. This allows the center to advertise work that aligns with prospective sponsors' field of interest.

Determine the Pressing Needs of Puerto Rico

The objective was to get as many sponsors leads for the project center as possible and determine what needs the Puerto Rican community values. The logic being that nonprofits in Puerto Rico would be established based on the most pressing issues. By reviewing these non-profits, the researchers could also understand what the most needed work was in Puerto Rico. These leads would be whittled down to a smaller list based on quality, and then given to the director to reach out to for future years of projects. Quality in this sense was based on multiple factors, including distance/time to the office, size of the company, and the type of work they conduct. This creates a new way of finding sponsors that is not limited to word of mouth of a simple internet search of companies. Additionally, using a full list of every non-profit results in a comprehensive list. That is, no nonprofit (or potential sponsor) can be missed in the search. Identifying these sponsors was important for giving the PRPC paths and options for diversifying project work to best assist Puerto Rico.

Potential sponsor information was retrieved from two sources, the IRS for nonprofits, and pr.gov for government organizations. For non-profits, the information was pulled in from the IRS online lookup tool. This tool lists every nonprofit in Puerto Rico, with information that allowed the researchers to download location, contact, size, revenue, and classification information. This classification tag allowed the researchers to sort the non-profits by the type of work they conduct. This data is all compiled into an 'IRS 990' form, which is required to be submitted annually by nonprofits. A search was applied for all 990 forms filed from Puerto Rico. After the initial filter, the forms were programmatically downloaded and organized in a shared datastore by form type. Each datastore was indexed and all references to each form were made numerically. Programs for extracting data were custom to this project and written in python.

For government organizations, the program scraped through the Portal Oficial del Gobierno de Puerto Rico, a repository that contained a comprehensive list of government-sponsored organizations in Puerto Rico. For these entities, the main information available was contact, postal address, description, and website URL. On execution, the program

emulated a browser and followed simple steps to iteratively, "click" on each organization, download the HTML and grab the text fields for each header or download the original form of the organization. If all the fields were text fields, the data was dumped into the CSV immediately. In the case of the IRS website, forms were scanned, broken apart, and filed into an easily searchable CSV file for keywords and codes. The fields of interest being extracted for non-profits were total revenue, description, telephone number, and founding date. Most of the process was completely automated, especially with the PR government portal and IRS 990 N forms, because each field was a separate object on the website. The flow chart detailing how forms were scanned into the our system is outlined in Figure 1 below.
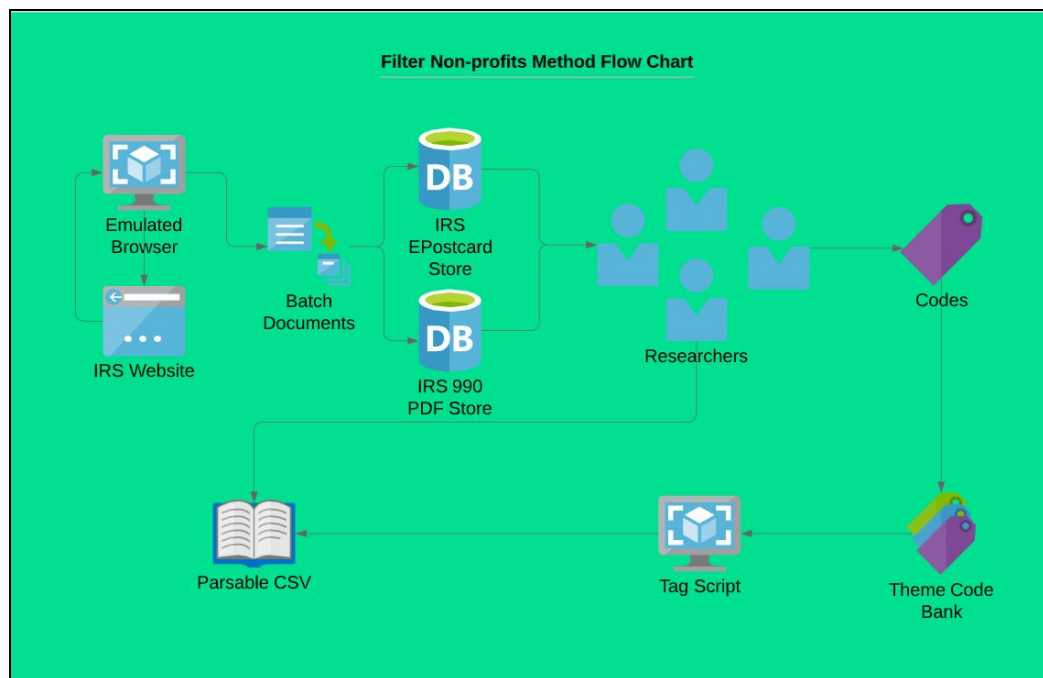
Figure 1: Flowchart of method to filter nonprofits programmatically

The prevailing principle was all nonprofits are legally required to fill out some variation of IRS Tax Form 990 (990N, 990EZ, 990PF, etc.), and that all relevant organizations worth working with would be listed by the territories government. Therefore, by using these two websites to search for non-profits, a wide net was cast for potential sponsors. This method also helps to generate contact information quickly from many non-profits at once.

This entire system is visualized above in Figure 1. To begin, an emulated browser requests a web page for a non-profit on the IRS website. Once it receives the page, the program

downloads each completed form submitted by the non-profit for the 2019 tax year. With each form that comes in, the program 'reads' the data automatically, and puts the data it reads into a spreadsheet before saving it. This process is repeated for every non-profit in Puerto Rico at a rapid rate. This far surpasses the speed that would be humanly possible by the researchers otherwise. Before the final CSV was distributed, some manual work was done to convert IRS labels (describing what the organization does, ranging from A01-Z99) from the organization classification line (letter K on the form) into codes. After codes were generated, they were funneled into a few key themes and categories. These themes were valuable to categorize the nonprofits so that based on the project center's desired direction, an accessible list of potential partners was available.

Using this information, the team generated a list of potential partners by utilizing a decision matrix. The matrix generated the list of NGOs and government organizations that we think will serve well as potential sponsor leads. We initially started with 1700+ organizations and were able to narrow it down to 158 using different metadata from the source of the datasets. For the NGOs (accounting for 123 out of 158), we created a scoring system that combined location and size of the company (from total assets). Because the number of assets is skewed, we did a linear interpolation by taking a log of the total amount and standardizing them from 0 to 1; a similar process for scoring distance was conducted as well. After that, the two scores were added and the organizations were ranked. After ranking, the ten highest scores of NGOs from each of the eleven themes were combined into a new list for more scrutiny. From this new list, one last pass was done to remove all the organizations that might not be appropriate for collegiate student work, or had out of date information.

The biggest challenge using this method was missing information. Not all organizations have the most updated filings. Old tax forms also occasionally had outdated contact details. Fields such as website information, that are voluntary, were also sometimes empty. Another challenge was the variations of tax filings depending on the size of the organizations. Some non-profits filed electronically and if the company was small enough web scraping became easier (see Appendix C). However, many non-profits had records that were just images and not pdfs, (see Appendix D), making programmatically pulling fields a technical challenge.

Results

The goal of this project is to analyze past IQPs to take a macro look at the project center's history, alongside an exploration of IRS 990 tax form data of NGOs in Puerto Rico. The results are grouped into three sections: project center focus, interview/survey summaries, and IRS data analysis. The first section analyzes the PRPC's IQP trends, visualizing the changes between IQPs year to year to achieve a better understanding of the current state of the center's efforts. The second section acquired student experiences to identify guidelines for improving project success and enable new methods of establishing relations with potential sponsors. The objective was to get as many sponsor leads for the project center as possible and determine what needs the Puerto Rican community values. Following the results are various ways, we reached our end goal of giving a list of suggested sponsor contacts and a set of best practices for student, sponsor, and director conduct.

What is the Project Center's Focus? How Has it Changed Over Time?

The goal of identifying the project center's focus on themes over time was to understand the PRPC's objectives over the years and correlate project themes and successful types of projects to use when pursuing new potential sponsors. Since there were already years of lessons learned by prior projects, it made sense to use them as a means to inform the future of the center and the sponsors it is to engage. One finding, from the history of the project center, revolves around a heavy focus on environmental issues. Coupled with new findings on what makes a project effective, this focus can be shifted to new areas.

The first data point of interest was the number of papers separated by categorical themes based on type of work as stated in the methods. These are graphed below and highlight the center's focus on environmental work, (see Figure 2).
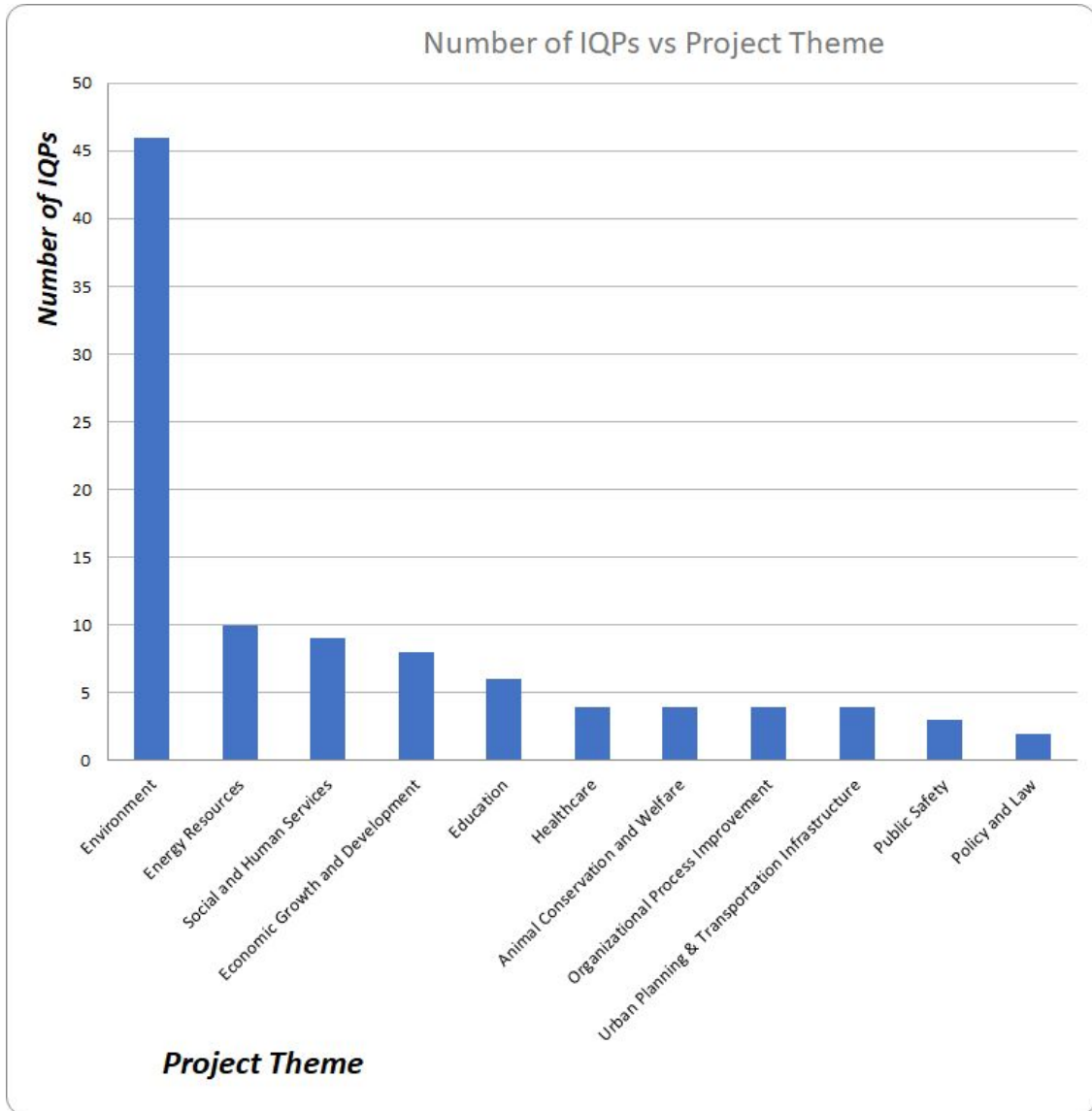
Figure 2: Number of project themes occurrences from 2004, sorted largest to smallest

WPI students have a diverse set of skills coming from an expansive set of 33 possible majors. This forms a wide array of skills and special talents that can be brought to make projects impactful. Since students can see past projects and have some say in the projects they are placed with, it makes sense that they gravitate towards projects that resonate the most with their abilities and interests. By broadening the spectrum of project topics that the center hosts, students can be better matched with topics that matter to them. Figure 2 indicates that the Puerto Rico Project Center has had a primary focus on Environmental topics. By sorting through a list of potential

sponsors (from a list of all nonprofits that have filed tax forms in Puerto Rico), some from each category pool can be sent emails regarding sponsoring a student project. In doing so, the types of projects are diversified. Something to note is that although one theme dominates in the number of projects, it shows that the center does have precedent with working in other areas. This means that when looking through potential sponsors, the administration of the center should not feel daunted with the idea of working outside of Environmental Sustainability/Conservation. This imbalance can also be attributed to the repeat of some sponsors as many as 20 times.
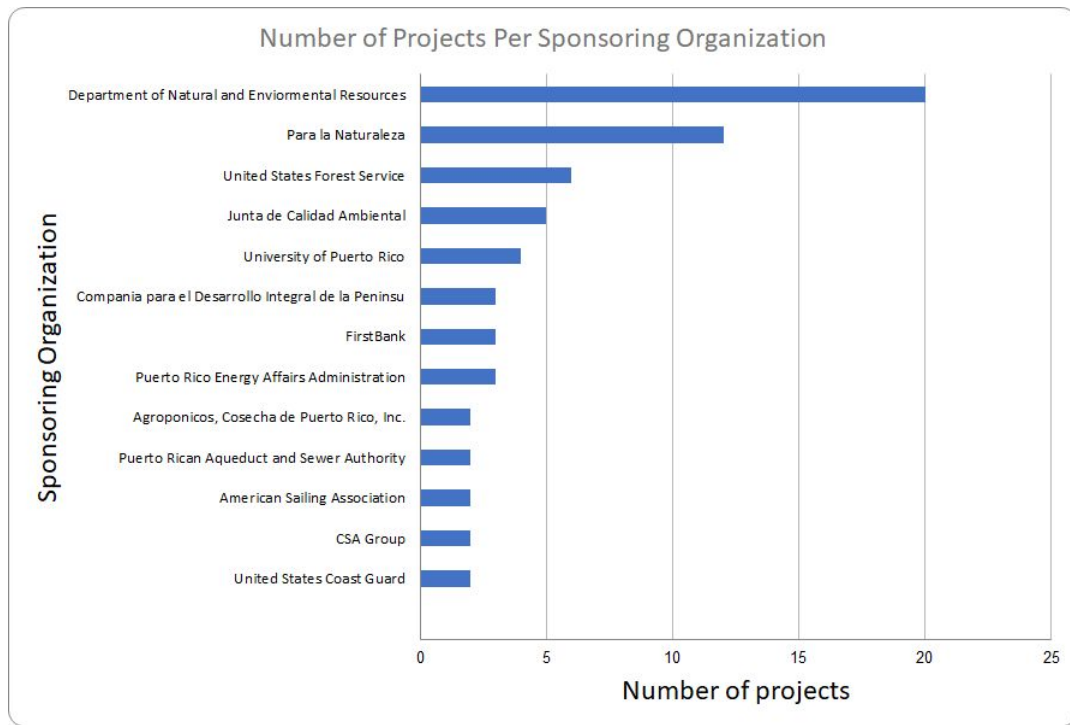
Figure 3: Number of occurrences of a sponsor hosting more than one project since 2004. Note that this only includes repeated sponsors.

In the center's history, the Department of Natural and Environmental Resources (DNER) is the most frequent sponsor, with 20 (well above the average 1.97) hosted IQPs. Because setting up new relations takes time and creates an unknown in terms of how the projects will be run, it makes sense for the center to feel comfortable working with the same and repeat sponsors. However, this skews the type of work the center does in one direction.
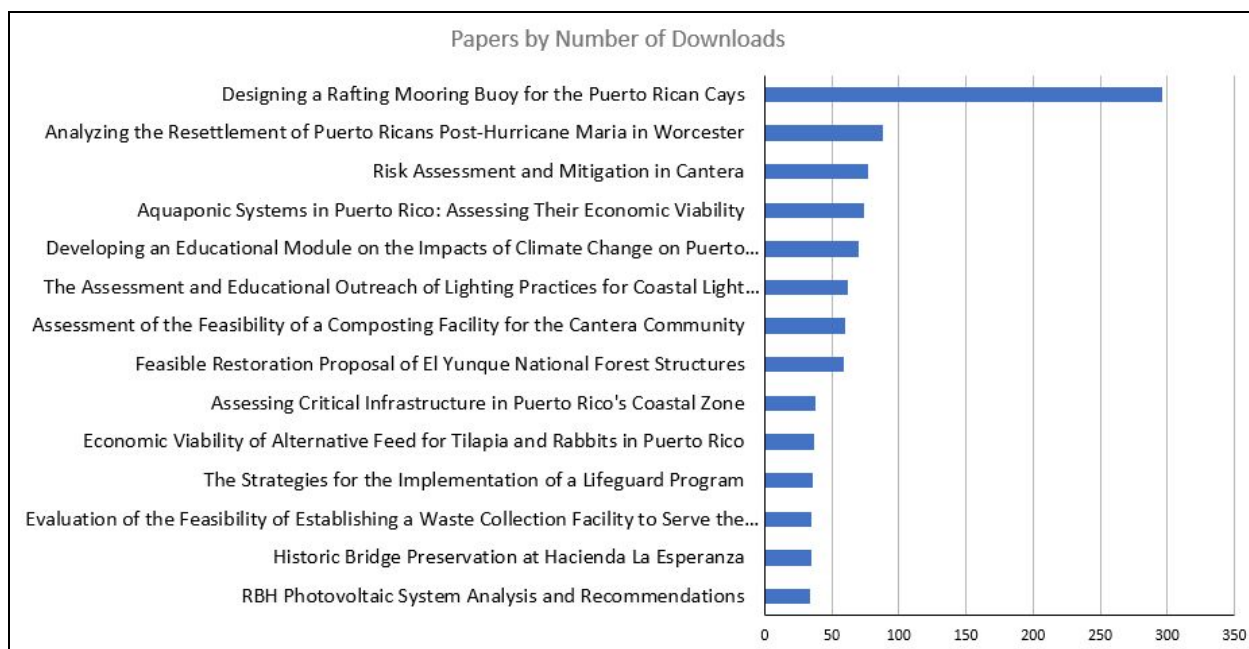
Figure 4: Top 14 most downloaded papers, sorted from highest to lowest downloads

The final analysis of interest, report views, noted above, comes from the interest in ranking project impact outside of the sponsors' usage. Since papers can prove useful to other researchers conducting similar work, we also focused on how many times papers were downloaded. The number graphed for each project represents the number of times the IQP report was viewed. This is used in the pamphlet deliverable later on, in order to pick out projects to advertise. The engagement was measured from metadata scraped from the WPI Gordon Library website.

Interview/Survey Summaries

The goal of conducting surveys on alumni and sponsors was to offer recommendations on how to improve student and sponsor relationships and identify circumstances of positive and negative sponsor experiences to consider when finding potential new sponsors.

From the student population, we received 22 surveys, from students who completed their IQP in the years 2013-2019. However, as indicated by the pie chart below, a little over ⅓ of the responses were from 2019. This is likely because they are active students who are more

responsive to their WPI emails. From all other years, students already graduated by now because most students do their IQP their junior year at WPI.
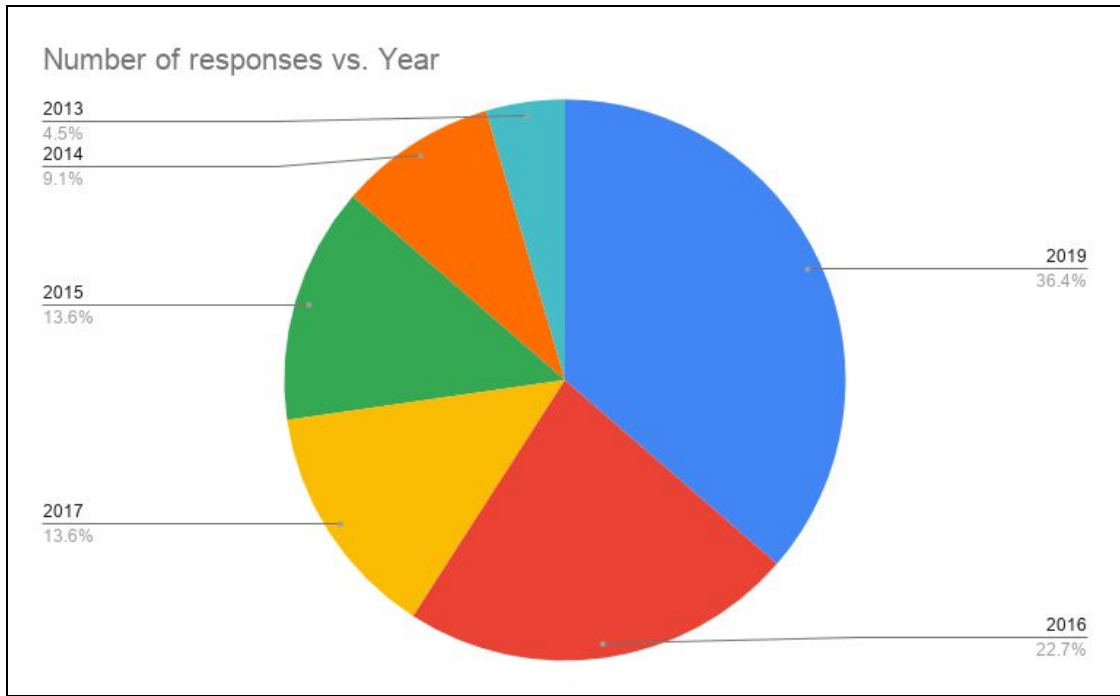

Figure 5: Percent breakdown of IQP completion year from alumni survey respondents

These surveys focused on student sentiment towards their sponsors, and how confident they felt that their projects were being implemented. We defined student sentiment with three variables: attentiveness, communication about goals and objectives, and professionalism. The results are in the following graph (see Figure 6):

How would you rate your sponsor in the following categories?
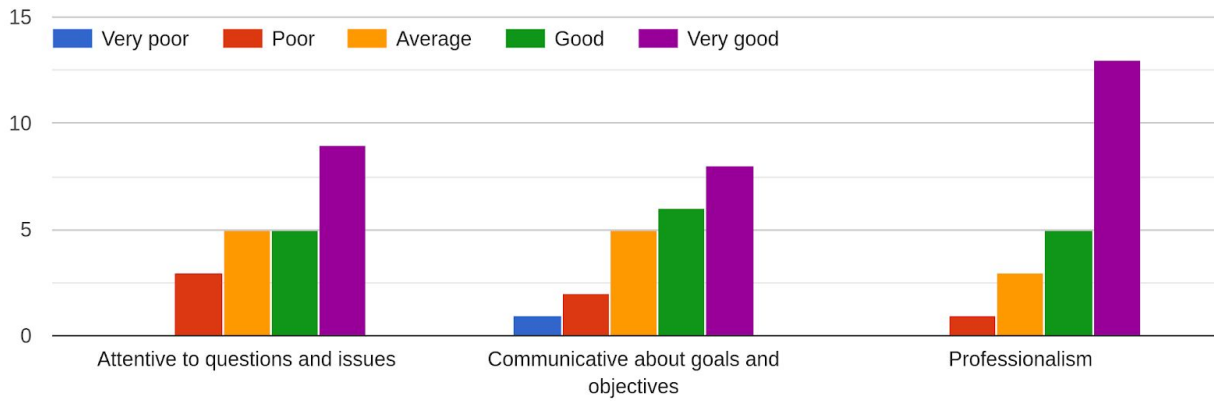
Figure 6: 5 point rankings from Puerto Rico Project Center alumni on attentiveness, communication, and professionalism regarding sponsors

Figure 6 shows that students feel that there is a communication barrier between them and their sponsor. From the one-on-one interviews conducted with the students afterward, we can see that they want more attention and communication with their sponsors. We also focused on how confident the students were that their projects were being implemented. Figure 6 shows that only 9% of students felt that their projects were impactful, with an average rating of a 3 out of 5. Many students create materials for sponsors to implement, and this confidence rating is likely because students do not keep up with sponsors to see if their deliverables are used.

To what degree do you feel your project had an impact -- on either your sponsor, on other organizations of businesses, or on members of the community?

22 responses

Figure 7: Student Confidence Rating (1-5) on Community Impact

The survey also had an optional open response question for students that had either really great or poor answers to the previous questions. The goal was to see if there was a common theme between people who stated strong opinions that skewed the distributions:

"If you selected very poor or very good for any of the answers, feel free to put down why in the text box below":

- General Response for good experiences:
    - Students perceived that the liaisons were making an effort even if not perfect to help them with their projects.
    - The sponsor seemed personable and helped the students adjust to life in Puerto Rico.
- General Response for poor experiences:
    - Students perceived that the sponsors were not interested in their experiences and more about getting work done for them, even if it did not meet the guidelines of an IQP project.
    - Students were frustrated if their point of contact changed because it affected the direction the project would take, thus wasting work.

After conducting surveys, we left an optional signup box for students to register for interviews over Zoom (a web conferencing tool). Out of the 22 students that filled out interviews, 11 of them signed up for interviews. This time, however, over half of the responses were from students that completed their IQP in 2019. This is likely because current WPI students widely used Zoom during the 2020 D-term because of classes moving online during the COVID-19 pandemic. The results of these interviews are presented below as key points of interest that the group found across interviews per question.

Conducting interviews with PRPC alumni lead to a multitude of important findings regarding student and sponsor success when conducting IQPs (see Appendix E). First and foremost was communication with sponsors was key to a successful project. Many interviewees stated they struggled to contact their sponsors and that project descriptions were lacking, leaving many students in a state of confusion. Another major finding was personal connections with sponsors were especially important for enhancing the immersive and cultural experience students were looking for within IQP. Students who recorded having personal interactions such as having a meal with sponsors reported greater happiness with the project, better communication with sponsors and success of the project overall. A recommendation to the project center director would be for a requirement for sponsors to have a meal with students outside of sponsors meetings (similar to how advisors do with students) given this information. And finally, student commute times proved especially important to students' levels of happiness and success. Students who had to commute over an hour to their project site often skipped going to their project sites once or multiple times a week due to travel time.

Although we got answers from 22 students from the surveys, from the sponsor surveys, only one out of the 15 surveys was completed. This research was conducted during uncertain times for a lot of people. Many of the organizations that we reached out to had limited activity because of the pandemic. Most of the sponsors/liaisons either did not fill out the survey or contacted us, saying they did not feel comfortable answering the questions. This was due to a high rate of turnover in these organizations, with many liaisons/points of contact not working at the organizations anymore. However, to make use of the work done to collect contact

information and initiate contact, the group made a list of organizations that former liaisons moved to. This is because a liaison has a big effect on projects and student/sponsor relations. Choosing a former liaison when reaching out to potential sponsors decreases the risk of no response, and gives the center a point of contact with someone already familiar with IQPs and WPI.

IRS Data Analysis

The goal of conducting an analysis of IRS data was to identify potential new sponsors, assign categories based on their themes, and give useful information for consideration to identify new potential sponsors. One key point to consider when choosing new sponsors is the distance from residence/hotel for students. A long commute can be detrimental to the IQP experience. However, one difficulty is gauging commute by distance, as certain areas in Puerto Rico do not match San Juan's public transportation infrastructure. The following graph gives a distribution of nonprofits from all of Puerto Rico by their distance from the student residence. A more detailed list can be found on the PRPC website.
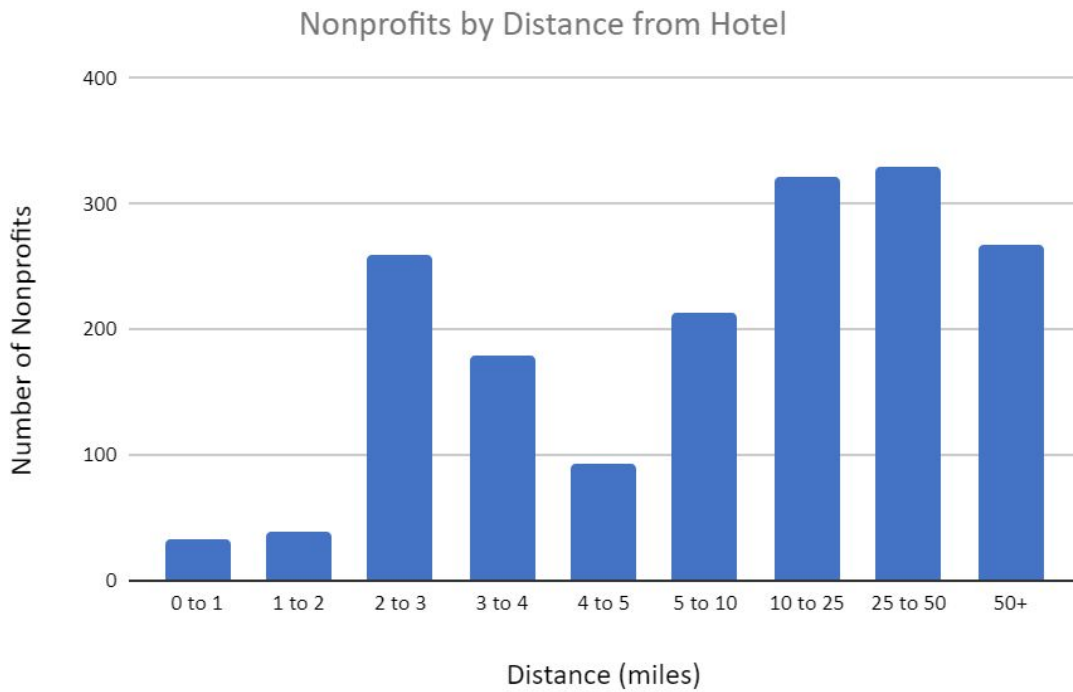
Figure 8: Number of nonprofits by distance from student residence, in miles.

We filtered them by distance from the students' locations and displayed them on an interactive map, as shown below in Figure 9. This allows for an easily usable list of potential sponsors, saving time on sponsors that are too far away for students to commute to. In addition, each sponsor was given a unique color based on their classification (e.g., Education, Energy, etc.). This enables a quick visual way of finding nearby sponsors in the desired research area.
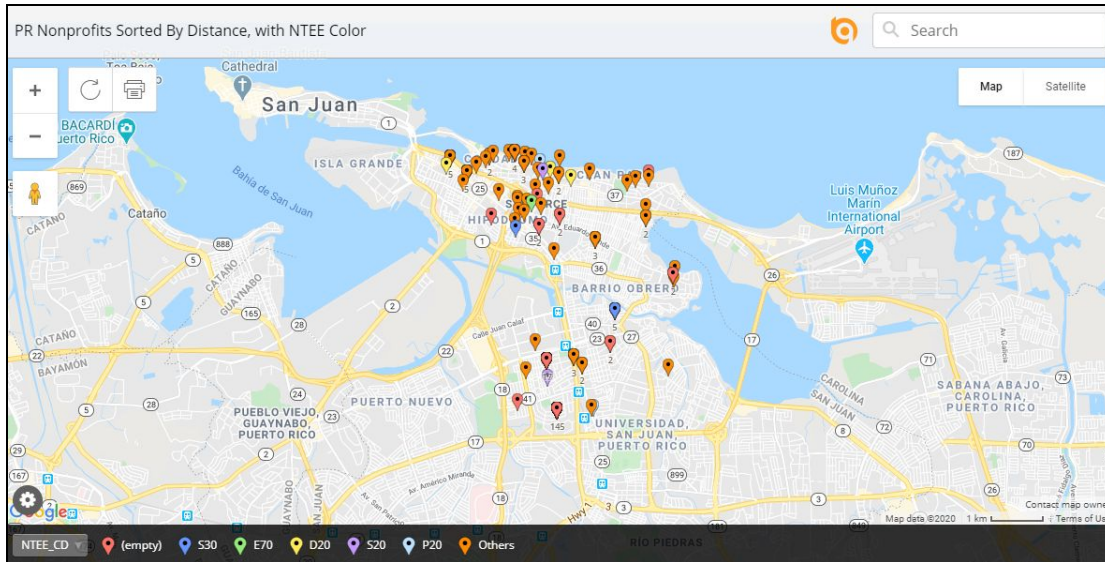
Figure 9: Interactive map of nonprofits in Puerto Rico, labeled by color

Besides finding commute distance for the students, location distribution was of interest in order to figure out potential areas outside of San Juan that the center could look into. Below, in Figure 10 and on the website, is a heatmap that shows where nonprofits are located in Puerto Rico. This highlights cities of interest that the center might be interested in moving to, like Ponce or Mayaguez.
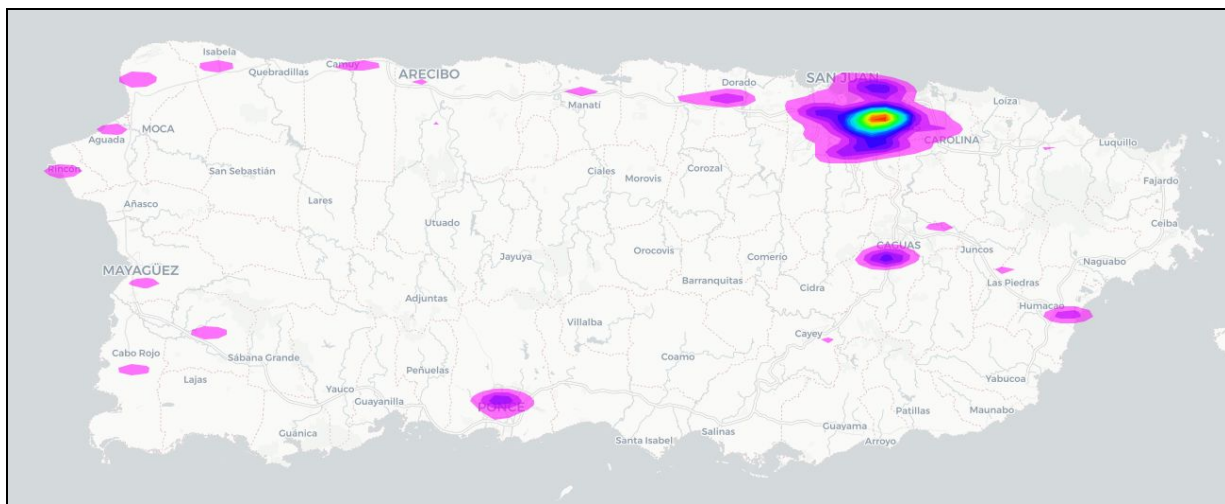

Figure 10: Heatmap of nonprofit locations throughout Puerto Rico based on IRS filing location
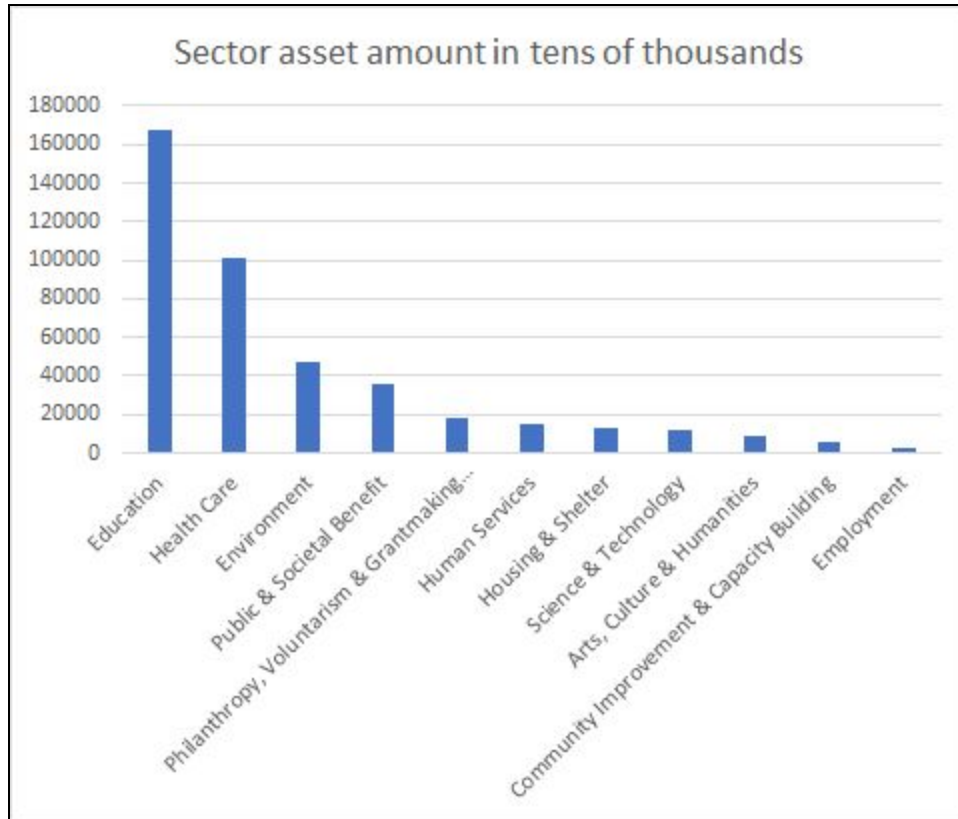
Figure 11: Amount of assets held by nonprofit in each identified sector, in tens of thousands of US Dollars - sorted largest to smallest

The graph below, Figure 12, is the distribution of nonprofits by their area of work. This shows areas that the non-profit community focuses heavily on. Referring to Figure 2, the PRPC has a heavy focus on the environmental sector, which is a small sector in Puerto Rico's focus, and thus there is ample room for WPI to work in other areas and still have many sponsor candidates.

Distribution of Nonprofit Types
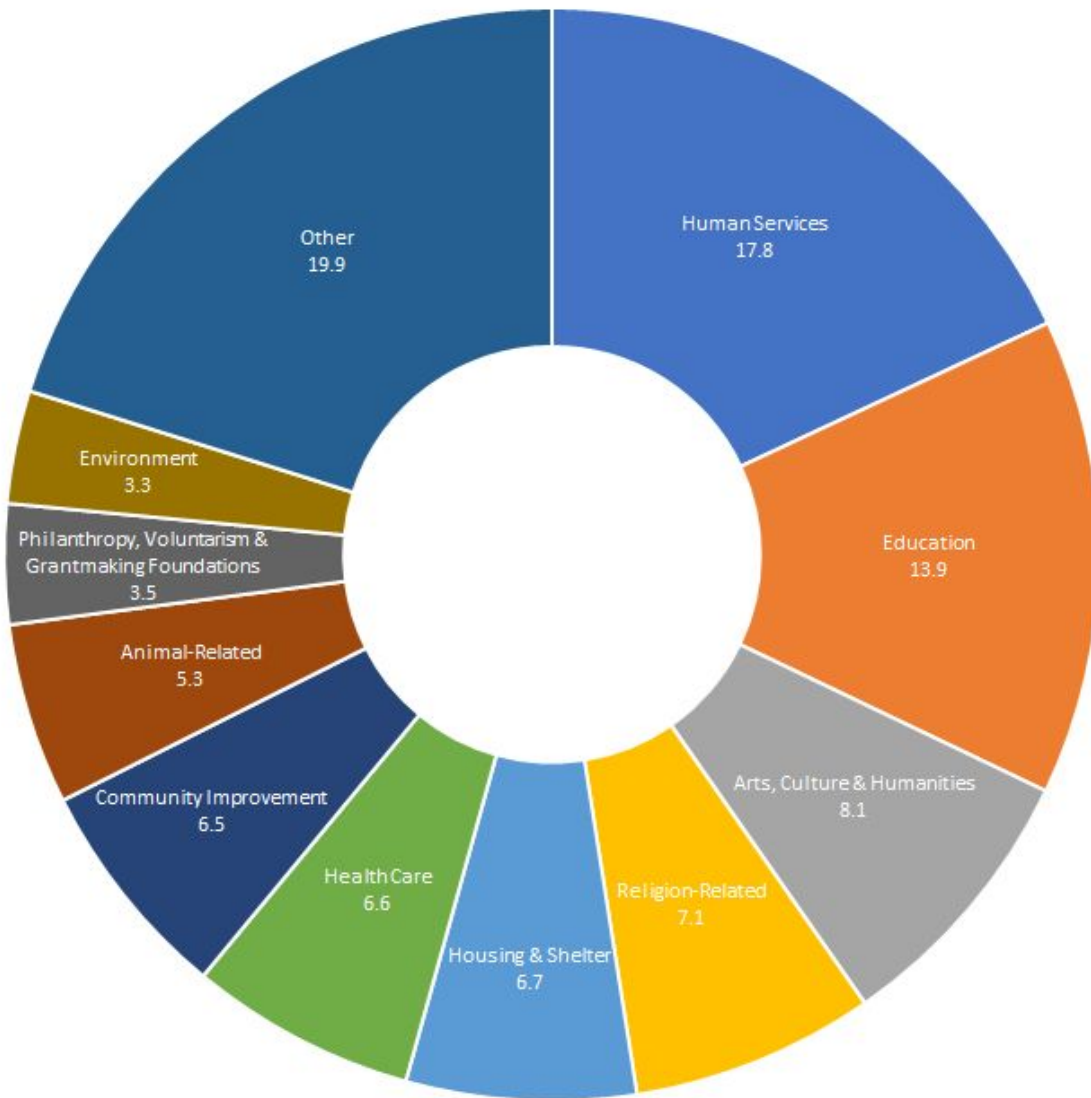
Figure 12: Percent distribution of nonprofit sectors, counting every organization with exactly one categorical tag

The benefits of categorizing sponsors include identifying specific sponsors the center would be interested in working with and being able to search it on the website described later on.

Deliverables from Results

This section shows off the deliverables and outcomes from the analysis of the data collected. The data informed the creation of, promotional materials (pamphlets), interactive visualizations on a new website, along with accessible databases. These materials are tools that will help the center achieve our goal of diversifying work, by being able to quickly determine areas lacking work, and choosing the correct promotional materials for targeting contact.

Pamphlets

Figure 13: Pamphlet with two excerpts of other focus areas

The purpose of the pamphlets is to be used as advertisements for NGOs to sponsor WPI projects while showing some example projects done at the project centers for students. This

pamphlet comes in eleven variations for each theme used to analyze IQP trends. Each variation comes with two projects related to that theme, chosen by the level of engagement from the first method.

This gives the center the ability to send a catered pamphlet to a potential sponsor with projects that are in the same vein as the NGO or government organization's field of work. For example, a potential sponsor that works with middle school students would be sent the Education pamphlet seen in Figure 13.

Databases

The purpose of creating a database is to house a list of NGOs from the IRS database, all the IQP project reports from the Gordon Library, and data from government organizations to make it easier to programmatically make rules, analyze nonprofit trends, and find potential sponsors.

Website

The goal of the website is to visualize our findings in a way that is easy to navigate by potential sponsors. It allows the user to search through sponsors and find all corresponding projects related to that sponsor. One tab also maps a list of NGOs based in PR and how far they are based on the student's residence. This can be filtered by the theme of their organization. This map was created by converting 1,691 addresses to latitude and longitude coordinates and plotting them on a map (see Figure 9).

Conclusion

The goal of this project is to analyze past IQPs to take a macro look at the project center's history, alongside an exploration of IRS 990 tax form data of NGOs in Puerto Rico. This aimed to identify traits of successful PRPC sponsors and identify potential sponsors who shared similar characteristics to help inform the center's direction and partner acquisition.

After collecting and analyzing data on all projects conducted under the supervision of the PRPC, the team came to two major findings. The project center has mainly focused on projects in the category of environment/sustainability over the years and has been especially involved with the DNER for IQP projects. While working on environment sustainability is a valid and important sector, there are opportunities for the project center to expand into a multitude of different sectors outside of environmental sustainability, as seen from the IRS 990 tax form data.

Conducting interviews with PRPC alumni lead to a multitude of important findings regarding student and sponsor success when conducting IQPs. First and foremost, communication with sponsors was key to a successful project. Interviews with PRPC alumni stated they struggled to contact their sponsors and that project descriptions were lacking, leaving many students in a state of confusion. Another major finding was personal connections with sponsors were especially important for enhancing the immersive and cultural experience students were looking for within IQPs. Students who recorded having personal interactions, such as having a meal with sponsors, reported greater happiness with the project, better communication with sponsors, and success of the project overall. A recommendation to the project center director would be for a requirement for sponsors to have a meal with students outside of sponsors meetings (similar to how advisors do with students). And finally, student commute times proved especially important to students' levels of happiness and success. Students who had to commute over an hour to their project site often skipped going to their project sites once or multiple times a week due to travel time. As a recommendation, the project center director should use the team's mapping resource to identify sponsors who are geographically close to the student residence to improve the success rate of projects.

When performing the analysis on the IRS 990 tax forms, the major findings included the focus of Puerto Rico nonprofits. When sorting nonprofits by type, Human Services has the highest number of organizations, followed by Education, and then Arts, Culture & Humanities. Another major finding was Puerto Rico's nonprofit asset amounts, with the leading themes being Education, Healthcare, then Environment. This information is an indicator of Puerto Rico's main focus and pressing problems facing the commonwealth.

These findings culminate into a list of recommendations for the PRPC to consider moving forward. First and foremost, when establishing relations with sponsoring organizations, it is important to ensure an understanding and expectations when it comes to communication with IQP students. From the projects findings, communication and properly defined projects from the start prove most successful for both sponsoring organizations and students. Another recommendation includes avoiding sponsoring organizations which require long commutes. Students who had to travel significant periods of time had less motivation for their project and did not go to their project site every day. Another recommendation, based on our findings, includes reaching out to organizations in the fields of Education, Human Services, Healthcare and Arts, Culture & Humanities, due to the highest number of nonprofits and most assets belonging to these categories. This is further beneficial for the PRPC as their main focus has been on Environment/Sustainability allowing room for diversification of the project centers work.

Unfortunately, due to the COVID-19 crisis, we were unable to complete a large portion of our original plans to interview past sponsoring organizations of the project center. There is a large amount of research yet to be completed to understand the impact IQPs have on sponsoring organizations and if project work is actually utilized. This research is also not solely limited to Puerto Rico, but can be applied to any project center to understand the effectiveness of WPI's IQPs across the globe.

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Appendices

Appendix A: Puerto Rico Project Center Sponsor Interview Questions

Given to past sponsors of the Puerto Rico project center identified in past project records.

We are conducting this interview to survey your background and experience with the Puerto Rico Project Center, and to assess the impact that PRPC projects may have had on your organization. With your consent, we would like to record your responses for use in our IQP report. Additionally, we would like your permission to publicly disclose your identity and responses to some of the questions in our interview. We can ensure you that any requests for anonymity and confidentiality will be honored, using pseudonyms if necessary. Participation in this interview is voluntary and may be ended at any time.

1. How long have/had you been in connection with the Puerto Rico Project Center?
2. What different project themes has the PRPC and WPI facilitated for your organization?
3. What were some of the most notable or memorable projects in terms of their outcomes and specific impacts on your organization?
4. Do you know of any data or publications that have documented this impact?
5. Why has/did your organization found/find it useful to continue sponsoring projects for the PRPC? What are the benefits?
6. Overall, how closely did you work with the students who completed their IQP on behalf of your organization? Was it daily, once or twice a week, etc?
7. How independent or autonomous were the students while working with your organization? Were they competent at working unsupervised?
8. Are you aware of other PRPC projects that have had an impact on the community?
9. Do you know of any members of the community you think we should interview about the impacts these projects have had?
10. (If the organization has stopped sponsoring projects) Why was the decision made to stop sponsoring PRPC projects?
11. Were there any negative or unintended consequences of the project?
12. What aspects of your project experience could WPI work on to help improve the quality of future projects?
13. Is there anyone else in your organization or anyone outside who has worked with the PRPC (or might be interested in working with the PRPC) that you can refer us to?
14. Do you have any media -photos, videos, recordings - related to the projects that you could share with us?
15. Do you have any last comments or suggestions? Do you have any questions about our projects, the PRPC, or WPI?

Appendix B: Puerto Rico Project Center Alumni Survey

Puerto Rico Project Center Alumni Survey

Thank you for taking the time to complete this survey! It should take about 5-10 minutes, and your response will help us understand the impacts of the Puerto Rico Project Center and to continue to improve the student experience abroad. We may also use some of this information to further promote the work of the Center and to recruit new sponsors for projects. Your responses will be kept anonymous unless you indicate that we can use your name. Your email will not be shared, and no identifying information will be included in the final report of this information.

CONTENT

What is your gender? *

○ Female

○ Male

○ Prefer not to say

○ Other...

What year did you complete your IQP? *

1. 2019

2. 2017

3. 2016

4. 2015

5. 2014

6. 2013

7. 2012

8. 2011

9. 2010

10. 2009

11. 2008

12. 2007

13. 2006

14. 2005

15. 2004

16. 2003

17. 2002

18. 2001

19. 2000

20. 1999

21. 1998

22. 1997

23. 1996

24. 1995

25. 1994

26. 1993

27. 1992

::::

What term did you complete your IQP?

1. A

2. B

3. C

4. D

5. E

What sponsoring organization did you work with to complete your IQP? *

Short answer text

Are you still in contact with your sponsor? *

○ Yes

○ I had some contact after the project, but not any more

○ No, I had no further contact after leaving Puerto Rico

How would you rate your sponsor? *

	Very poor	Poor	Average	Good	Very good
Sponsor Rating	○	○	○	○	○

Which of the following most closely fits the project theme of your IQP? Check all that apply. *

- ☐ Education
- ☐ Environment
- ☐ Energy Resources
- ☐ Healthcare
- ☐ Social and Human Services
- ☐ Animal Conservation and Welfare
- ☐ Organizational Process Improvement
- ☐ Economic Growth and Development
- ☐ Urban Planning & Transportation Infrastructure
- ☐ Policy and Law
- ☐ Public Saftey

What kind of deliverables did your project produce? Check all that apply. *

☐ Training or Educational Materials

☐ Promotional Materials and Events

☐ New Procedures and Processes

☐ Information Repositories, Databases, Websites

☐ Computer Programs or Apps

☐ Build Structures or Products

☐ Designs for Built Stuctures of Products

☐ Recommendations and Proposals

☐ New Collaborations and Partnerships

☐ Research Study

☐ Other…

How important were each of the following aspects of the Puerto Rico Project Center in influencing your decision to apply to that location? *

	Not at all im…	Slightly impo…	Moderatly i…	Very importa…	Extremely im…	Not sure/Not…
Housing	○	○	○	○	○	○
Types of proj…	○	○	○	○	○	○
Opportunitie…	○	○	○	○	○	○
Similar langu…	○	○	○	○	○	○
Available in …	○	○	○	○	○	○
Recommend…	○	○	○	○	○	○
Fun trips and…	○	○	○	○	○	○

To what extent did your project experience enhance your abilities in these areas? *

	Not at all	A little	A moderate …	A lot	A great deal	Not sure/Not…
Professional …	○	○	○	○	○	○
Professional …	○	○	○	○	○	○
Professional …	○	○	○	○	○	○
Working on a…	○	○	○	○	○	○
Leading othe…	○	○	○	○	○	○
Defining achi…	○	○	○	○	○	○
Managing ti…	○	○	○	○	○	○
Conducting r…	○	○	○	○	○	○
Critically ana…	○	○	○	○	○	○
Generating n…	○	○	○	○	○	○

If you selected "A great deal" or "A lot" for one or more items, please explain which aspects of the project helped you develop that skill.

Long answer text

To what extent did your project experience change your awareness of or attitudes about the following? *

	Not at all	A little	A moderat…	A lot	A great deal	Not sure/N…	Column 7
Connectio…	○	○	○	○	○	○	○
Global issu…	○	○	○	○	○	○	○
Ethical res…	○	○	○	○	○	○	○
Cultural dif…	○	○	○	○	○	○	○
The interdi…	○	○	○	○	○	○	○

If you selected "A great deal" or "A lot" for one or more items, please explain which aspects of the project helped you develop that skill.

Long answer text

How may your project experience have changed you on a personal level?

◯ Influenced my self confidence

◯ Stimulated new interests

◯ Motivated personal changes in my lifestyle or attitude

◯ Impacted my personal goals

◯ New and/or lasting friendships

◯ Other...

To what degree do you feel your project had an impact -- on either your sponsor, on other organizations of businesses, or on members of the community? *

	1	2	3	4	5	
None at all	◯	◯	◯	◯	◯	A great deal

To your knowledge, which of the following groups were affected by your project? Check all that apply. *

☐ Sponsoring organization

☐ Other organization or businesses beyond the sponsor

☐ General public/members of larger community

☐ Specific demographic

☐ None of these groups

If you selected "Specific demographic" What specific demographic was that?

Long answer text

Please elaborate on the specific impacts your project had or any changes that came about as a result of your project.

Long answer text

To what degree would you recommend completing a project through the Puerto Rico Project Center to another student? *

○ Strongly advise against

○ Advise against

○ Neither recommend or advise against

○ Recommend

○ Strongly recommend

We are looking for action shots (photographs) of students working at their sponsor sites or with community members in Puerto Rico as well as photos of tangible achievements that gre out of project work (e.g. an event you orchestrated, something you built or created for the sponsor, etc). If you have these types of photos, would you be willing to share with us? *

○ Yes

○ No

If you said yes, you can upload file here. Otherwise, you can email them to prpcmedia@wpi,edu at any time until April 31st. Not that any media you provide here may be used in the future for PRPC promotional materials, such as videos or pamphlets. For proper attribution, please include your name, graduating year and a short description of the content

⬆ Add file

In future PRPC publications, we may wish to quote directly from some of the responses in this survey. Please indicate your preference in terms of attribution below. *

○ I agree to being quoted and identified

○ I agree to being quoted anonymously as "a PRPC alumnus or former student participating in the PRPC."

○ I would not like to be directly quoted in any form

If you indicated that you agree to be identified and quoted, we may wish to follow up on your responses with a few quick questions over the phone. If so, would you be willing to be contacted about a phone interview?

○ Yes

○ No

Please indicate your name and preferred email address here, and we may contact you within the next month to schedule a brief phone conversation.

Short answer text

:::

If you would like to be included in a raffle for one of three $25 Amazon Gift Cards, please provide an email address where we can notify you and send your online gift voucher. The email you provide will only be used to notify you if you win the gift card, or if you indicated that you would be willing to speak with us further.

Short answer text

If you would like to share a longer testimonial of your experiences, want to elaborate on something this survey did not cover, or have any questions or comments about this survey and the PRPC, please don't hesitate to contact us at prpcmedia@wpi.edu!

Long answer text

Appendix C: IRS 990N Electronic Tax Form

This is the tax form for organizations that are small enough to file electronically.

> **Tax Year 2011 Form 990-N (e-Postcard)**

Tax Period:
2011 (07/01/2011 - 06/30/2012)

EIN:
01-0687146

Legal Name (Doing Business as):
International Association Of Administrative
Professionals

Mailing Address:
B-23 Pepin Casanova St
Hatillo, PR 00659
United States

Principal Officer's Name and Address:
Minerva Roman

ZA16 Nevada St
Guaynabo, PR 00969
United States

Gross receipts not greater than:
$50,000

Organization has terminated:
No

Website URL:
arcelys_diaz@hotmail .com

Appendix D: IRS 990 Physical (Scanned) Tax Form

This is an example tax form for organizations that file on paper.

6049306100502 9

Form 990 — Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations)

▶ Do not enter social security numbers on this form as it may be made public
▶ Go to www.irs.gov/Form990 for instructions and the latest information.

OMB No. 1545-0047

2017

Open to Public Inspection

Department of the Treasury, Internal Revenue Service

A For the 2017 calendar year, or tax year beginning 07/01/17, and ending 06/30/18

B Check if applicable:
- Address change
- Name change
- Initial return
- Final return/terminated
- Amended return
- Application pending

C Name of organization: MANATI, ACADEMIA DISCIPULOS DE CRIS

Doing business as

Number and street (or P O box if mail is not delivered to street address): PO BOX 902 — Room/suite

City or town, state or province, country, and ZIP or foreign postal code: MANATI PR 00674

F Name and address of principal officer: MILDRED CORTES KUILAN

D Employer identification number: 66-0372667

E Telephone number: 787-854-5085

G Gross receipts $ 1,110,268

H(a) Is this a group return for subordinates? Yes ☒ No
H(b) Are all subordinates included? Yes No — If "No," attach a list (see instructions)

I Tax-exempt status: ☒ 501(c)(3) | 501(c) ( ) ◀ (insert no) | 4947(a)(1) or | 527

J Website ▶ www.adcmanati.net

H(c) Group exemption number ▶

K Form of organization: ☒ Corporation | Trust | Association | Other ▶

L Year of formation 1971 | M State of legal domicile PR

Part I Summary

1 Briefly describe the organization's mission or most significant activities: DEVELOPING INDIVIDUALS WITH A SOLID RELATIONSHIP WITH GOD AND THEIR FELLOW MEN WITH FULL MASTERY OF ACADEMIC SKILLS, SPORTS AND ENGLISH LANGUAGE, WITHOUT DISREGARDING THEIR PUERTO RICAN IDENTITY

2 Check this box ▶ if the organization discontinued its operations or disposed of more than 25% of its net assets

3 Number of voting members of the governing body (Part VI, line 1a)	3	5
4 Number of independent voting members of the governing body (Part VI, line 1b)	4	0
5 Total number of individuals employed in calendar year 2017 (Part V, line 2a)	5	48
6 Total number of volunteers (estimate if necessary)	6	0
7a Total unrelated business revenue from Part VIII, column (C), line 12	7a	0
b Net unrelated business taxable income from Form 990-T, line	7b	0

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	Prior Year	Current Year
8 Contributions and grants (Part VIII, line 1h)		0
9 Program service revenue (Part VIII, line 2g)	985,179	1,110,268
10 Investment income (Part VIII, column (A), lines 3, 4, and 7d)		0
11 Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)		0
12 Total revenue – add lines 8 through 11 (must equal Part VIII, column (A), line 12)	985,179	1,110,268
13 Grants and similar amounts paid (Part IX, column (A), lines 1–3)		0
14 Benefits paid to or for members (Part IX, column (A), line 4)		0
15 Salaries, other compensation, employee benefits (Part IX, column (A), lines 5–10)	663,653	678,853
16a Professional fundraising fees (Part IX, column (A), line 11e)		0
b Total fundraising expenses (Part IX, column (D), line 25) ▶ 6,600		
17 Other expenses (Part IX, column (A), lines 11a–11d, 11f–24e)	320,963	378,475
18 Total expenses Add lines 13–17 (must equal Part IX, column (A), line 25)	984,616	1,057,328
19 Revenue less expenses Subtract line 18 from line 12	563	52,940

	Beginning of Current Year	End of Year
20 Total assets (Part X, line 16)	759,787	1,215,827
21 Total liabilities (Part X, line 26)	376,060	779,160
22 Net assets or fund balances Subtract line 21 from line 20	383,727	436,667

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge

Sign Here ▶ Signature of officer — Date 02/06/2019

MILDRED CORTES KUILAN — EXECUTIVE DIRECTOR
Type or print name and title

Paid Preparer Use Only	Print/Type preparer's name: LUIS E. VELEZ ALVARADO	Preparer's signature	Date 02/06/19	Check if self-employed	PTIN P02199127
	Firm's name ▶ RSM Puerto Rico			Firm's EIN ▶	
	Firm's address ▶ PO Box 10528, San Juan, PR 00922-0528			Phone no 787-751-6164	

May the IRS discuss this return with the preparer shown above? (see instructions) ☐ Yes ☐ No

For Paperwork Reduction Act Notice, see the separate instructions.

Form 990 (2017)

DAA

SCANNED MAR 25 2019

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Appendix E, Alumni Interview results

List of questions in alumni interview and the general response

Interview Results		
	Interview Questions	**List Of all responses**
.	What was your project?	• Environmental conservation • Natural resources
.	What was your sponsor's focus or objective?	• Environmental protection • Education
.	What kind of deliverables did your project produce?	• Educational Materials • Pamphlets/Infographics for decision making • Cost analysis/guideline documents. • Common themes with deliverables are that they place the responsibility on the sponsors to implement.
.	What is your fondest memory with your sponsor?	• Personal interactions, often going out to lunch or spending time outside of work with their liaisons. • A personal connection with the sponsor correlated to more positive reviews of IQP experiences.

.	Were there any problems or issues you had with your sponsor?	● The size or rather perceived size of a sponsor affected student sentiment. 　○ Depending on if the NGO is large, students would encounter sponsors that are busier than smaller NGOs. ● Miscommunication. 　○ Either the sponsor was too busy, or the project details were not clear enough for the group. ● The distance and time traveling. 　○ A long commute, especially with different modes of transportation in the same journey can be tiring and hindered some people's motivation and productivity.
.	What learning outcomes did the PR Center give you?	● Appreciation for natural resources and wildlife. ● Immersion in nature for long periods of time. ● Learned how to balance deliverables to multiple stakeholders (papers for the advisors, the project for the sponsor) ● Teamwork and writing skills improved.

	What cultural insight, if any, did you get from living and working in PR?	- People were more relaxed in the workplace. - Although there were schedules to be followed, people were more open to pushing back deadlines