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Techniques Utilised to Incorporate Environmentally Focused Service Learning Projects into Courses in Biology and Economics

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**TECHNIQUES UTILIZED TO INCORPORATE
ENVIRONMENTALLY FOCUSED SERVICE LEARNING PROJECTS
INTO COURSES IN BIOLOGY AND ECONOMICS**

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ABSTRACT

Sacred Heart University has emphasized the use of service learning for over five years. Service Learning offers students opportunities to learn and develop through active participation in service experiences that are integrated into the academic curriculum. The work meets community needs and is directly linked to the content of the course. A Service Learning course includes reflection and analysis of the service experience. Two recent courses at Sacred Heart University incorporated environmentally focused service learning projects: one in biology and one in economics. This paper discusses the development and outcomes of these two projects: a park restoration project and a feasibility study for a local environmental organization. In addition, the authors provide suggestions on how to incorporate environmentally focused Service Learning projects into a college curriculum on either a mandatory or optional basis.

I. SERVICE LEARNING AT SACRED HEART UNIVERSITY

In order to re-emphasize the mission of the school and engage the students in helping the local community, Sacred Heart University introduced Service Learning into the curriculum in 1994, primarily in the areas of social sciences and communication. Service Learning has offered students the opportunity to learn about an academic subject through active participation in service experiences that are integrated into the curriculum. The service meets community needs and is directly linked to the content of the course. For example, students taking *Conversational Spanish* tutor children in bilingual classes or work in an elderly day care program for Spanish speaking senior citizens. A Service Learning writing course focusing on urban education involves students in inner city classrooms, while they study and discuss public policy issues related to education. Service Learning students in a research writing course exploring immigration issues visit weekly with elderly Russian Jews or help newly arrived immigrants learn English. In a religion course,

Contemporary Moral Issues, Service Learning students work in soup kitchens, inner city tutoring programs, mental health centers, Habitat for Humanity, and women's literacy programs.

A Service Learning course includes discussion, reflection and analysis of the service experience. It may also include student involvement in planning the project, contacting community members and grant writing when funding is needed. Service Learning may be required of all students in a course, or be an option in place of a more conventional research assignment. One of the aims of Service Learning is to turn passive learners into active learners, as students grapple with real life issues related to their course work. While providing meaningful service to the local community, the students also learn about citizenship and social responsibility.

Most Sacred Heart Service Learning programs occur in nearby Bridgeport, CT., a former industrial and manufacturing center with a very ethnically and racially diverse population. Since many of the businesses have moved out, unemployment is high and about one third of Bridgeport residents live in poverty. Many neighborhoods have been under great stress with serious crime problems, absentee landlords, and a transient population. Because of financial difficulties, the city has had to cut many important services, especially relating to the environment and many forms of pollution have added to the degradation of neighborhoods. Some groups in the city have looked to Sacred Heart to form partnerships to improve their neighborhoods.

In the past two years these requests have been the basis of Service Learning environmental projects in biology and economics courses. In the spring of 1998, a *Freshman Honors* class in environmental science, collaborated with 7th grade children from an inner-city elementary school, the local police, and community groups on the ecological restoration of an undeveloped woodland. The second Service Learning project was offered as an option in the *Principles of Microeconomics* course. In the spring of 1999, students selecting the service learning option conducted a feasibility study for Groundwork Bridgeport, a program which helps local community groups restore parks, reclaim vacant lots for green space or community gardens, build playgrounds, or do other physical improvements in the city.

II. THE SVIHRA PARK RESTORATION PROJECT

The objective of Dr. Mattei's freshman honors course was to "Think Globally and Act Locally". During the first six weeks of the course students

were required to read and discuss numerous articles and books on global environmental problems and possible solutions¹. Each week, two students were responsible for leading the discussion on topics assigned by the instructor. They had to find at least one additional article on the topic and supply a list of questions to the class in order to keep the discussion flowing. The last half of the course involved working on a local ecological restoration project. At the end of the course each student had to write a research paper on one particular environmental problem with a discussion of possible solutions. A group of concerned citizens including health officials from the local hospital had, coincidentally, contacted the director of Service Learning Programs at SHU. It was explained that this one degraded wooded wetland located behind John Read Elementary School of Bridgeport, CT. was not only dangerous for the school children but was negatively impacting the entire surrounding community. The police designated the park a crime "hot spot" due to the number of illegal activities that occurred there. The honors class agreed to take on this project and not just to clean up a park that may be littered again as soon as the semester was over, but in hopes that the children of the school would adopt the park and care for it after the college students had left. With this goal of teaching ownership of the park, a working group was formed including the principal and seventh grade teacher from the Read School, the community service director from St. Vincent's Hospital, and Machledt and Mattei from Sacred Heart University. It was agreed that three seventh graders would be teamed up with one college student. The students would all meet once a week at the park and work together to clean up, plant native woody seedlings and establish of wildflower meadow. After hearing the plan at the first meeting one seventh grader asked, "What is a meadow?"

When the college students surveyed the mounds of garbage, abandoned refrigerators, and burned out cars directly under the, "No Dumping, \$1000 fine" sign, they wondered how they would ever turn this 10 acre piece of land into a neighborhood asset.

Students divided into groups to tackle different aspects of the problem. They had to establish the formal boundaries of Svihra Park from maps and find out who actually owned the land. Liability issues were discussed and the seventh graders had to have permission slips signed by a parent before the park restoration could even start. Students then had to do an inventory of the existing trees, plants, and animals. The university students thought that it would be a good idea to each be responsible for the same three Read School students every week. By getting to know the students and working together we hoped the children would learn "ownership" and care for the park after the semester was over. The students worked together with teachers, Bridgeport Community Police, work-release inmates, health officials from St. Vincent's Hospital and later on in the project even parents to pull tires and garbage out of the wooded wetland. Ten city trucks were filled with debris and garbage. A

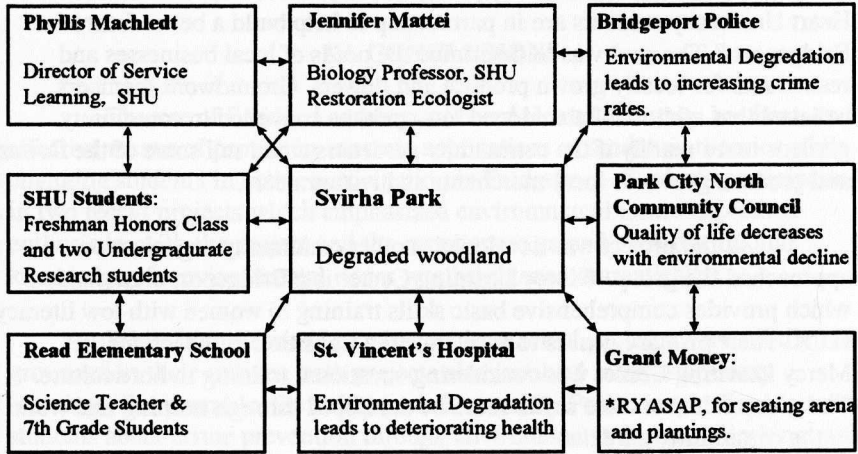
local towing service, with the help of the students of a SHU fraternity, pulled out the remains of three cars.

Once they had accomplished most of the cleanup, they started on the second phase of the project: building a nature trail to be a resource for the school and community. To be able to replant native trees and shrubs, the students and the Read children researched, applied for, and received an *assets* mini-grant of \$1200 for youth working to improve their neighborhoods. Together they built a nature trail with benches for a teaching arena, planted a meadow, and built birdhouses. University students also gave reports on several occasions about their project to a group of neighbors who were trying to start a community group. The restoration of Svihra Park became a focal point for that group, now the Park City North Community Council. The PCNCC started its own clean up days one Saturday a month and hosted a very successful Halloween party in the park. Sacred Heart students helped plan and run the party for over 300 neighborhood children. For the first time this spring the Read students celebrated Earth Day by doing three days of work in "their" park. The university students were proud that their Service Learning project had such a ripple effect in the community and that the project did not end when they left.

Dr. Mattei was not only able to teach important lessons about urban ecological restoration in her course, but by using the Service Learning approach she was able to help her students see first hand all the components necessary to make a positive change in the environment (see Fig.1). Her students also learned transferable problem solving skills. Whether they were finding out where the park wetlands were, who would lend them necessary tools, or how to motivate seventh graders, they learned valuable lessons. One student remarked at the end of the project that there was a river in her community in Maine that had become a dumping ground. When she went home, she wanted to see what she could do to start a similar clean up.

Because they worked in partnership with a wide range of community members, the "service" they did on the park restoration project is still continuing, long after the course ended. Dr. Mattei taught a professional development class for Connecticut elementary school teachers on the use of school yards and urban parks for outdoor teaching of science, math, and art classes to children. The teachers were amazed to find trout lilies and jack-in-the-pulpits growing in the middle of the city in a "forgotten" park. Park City North Community Council members are now attending Bridgeport Park and Recreation meetings, asking for more funding to improve and protect the park. This Service Learning course not only taught valuable lessons about improving the environment, but it also helped students and neighbors learn about community development and working together with people of different ages, races, and backgrounds.

Figure 1. Flowchart depicting the interconnectedness of one service learning project with the varied community members.



*Regional Youth/Adult Substance Abuse Project & Bridgeport Child Advocacy Coalition

III. THE GROUNDWORK BRIDGEPORT FEASIBILITY STUDY

The success of Dr. Mattei's project encouraged the use of service learning in other courses. Most recently, the students in Dr. Lyons' *Principles of Microeconomics* course conducted a feasibility study for two community groups. The project originated when Brian Gockley, the executive director of Groundwork Bridgeport, approached the University for assistance with community gardens. Groundwork is an innovative program, begun in Britain, which helps community volunteers build playgrounds, revive parks or carry out other physical improvement projects. The organization attempts to include neighbors, businesses, and volunteers to assist in their plans for reconstruction and revitalization. Students from the university had worked on several projects with Brian Gockley in the past, including the establishment of community gardens and the erection of playgrounds.

Groundwork Bridgeport was now considering the viability of using community gardens to raise fresh produce and/or flowers which would be sold commercially to local establishments. This provided an excellent opportunity to include service learning in an economics course. Participation in the study was included as an option, in lieu of another project, in Dr. Lyons' *Principles of Microeconomics* course.

The students designed and executed the recently completed study. In their words "We took part in this project with the hope of benefiting both Bridgeport businesses and Bridgeport gardeners...Groundworks and Sacred Heart University students are in partnership to help build a better future for Bridgeport." The goal was to determine the needs of local businesses and restaurants for locally grown produce and flowers. Groundwork members believed that additional abandoned lots could be converted to community gardens more readily if the community gardeners could sell some of the flowers and produce grown to local merchants and restaurateurs.

As the project was developed another community organization approached the group. Mercy Learning Center is a Bridgeport organization which provides comprehensive basic skills training to women with low literacy skills. Their primary goal is to accelerate the transition to the job market. Mercy Learning Center was considering vocational training in horticulture. The group felt that these skills could be developed through training and work in the community gardens.

Thus the project had two primary objectives: to assess the feasibility of commercializing the community gardens; and to determine the demand for women with basic horticultural skills.

The students segmented the potential market into small grocers, restaurants and florists. Students then surveyed local merchants and compiled the results. While some merchants were quite enthusiastic about a local source of produce, especially those interested in purchasing hard to find exotic produce, many were concerned about issues such as permits, health codes, disruption of current supplier relationships and the ability of the community gardens to provide a steady supply. Interestingly, the Jamaican community was most enthusiastic.¹ The study of vocational opportunities in horticulture suggested that relatively few opportunities were available and that wage rates were low. Many florists noted that firms were going out of business as a result of competition from supermarkets, large nurseries and a local Home Depot.

The students concluded that Mercy Learning Center should not adopt horticulture as a vocational training program due to poor job prospects and low wages. They felt that the community gardens should be expanded on a limited trial basis to include commercialization, though the students saw very little opportunity for profit. It was recommended that a Jamaican garden be initiated next year and the group suggested that the project might be tied in with a youth training program to educate local youth on gardening and the Jamaican culture.

The *Principles of Microeconomics* course will include a service learning option again in the fall. Students will: develop plans for a Jamaican

garden in Bridgeport, will work to establish an associated youth program, and will identify potential sources of funding.

IV. CONCLUSIONS

The use of Service Learning at Sacred Heart University has been an effective means of providing concrete applications of academic theories while engaging students in active participation in Bridgeport. Students participating in two recent projects which emphasized environmental issues expressed enthusiasm with the project and the experiences gained. Interest in, and knowledge of, environmental issues was heightened dramatically.

While both Service Learning environmental projects were solidly grounded in their courses, both projects also involved interdisciplinary learning. For example, the Bridgeport Community Police taught Dr. Mattei's students about crime prevention through environmental design. Working with the community group and the school, as well as inmates from the Alternative to Incarceration Program, the students learned about the diverse sociological makeup of the neighborhood. Discussing strategies with teachers and actively engaging seventh graders in reclaiming the park gave the Service Learning students insights into educational techniques. They were shocked to find out, for example, that the children had no concept of a "meadow" and feared the forest because of who might lurk there. Finding and discussing the biology of salamanders, frogs, song birds and skunks for the first time became highlights of their experiences together.

In the Groundwork project, students had to put their knowledge of economics to use doing the feasibility study, but because of the nature of the project, they also had to use important intercultural communication skills in dealing with an extremely diverse population. They recognized that they might have been more successful at approaching some of the Latino groceries and restaurants had they had some one in the group who spoke Spanish. The group also learned that Bridgeport is about 33% Latino, 33% black, 4 % Asian, and 30% white; however, there are 54 different ethnic groups within those categories, with many sociological implications. Finally, in their work with Mercy Learning Center, the students became aware of some of the issues facing women coming off welfare and the realities of minimum wage jobs. In both courses, the mostly white middle class college students came away from the Service Learning environmental projects with an added benefit, a better appreciation of the importance of working with diverse people, as well as the value of teamwork.

Since almost every community is facing environmental issues such as preserving open space, park abuse and overuse, decaying factory sites, water, air and land pollution, there should be ample opportunities to integrate Service Learning projects in a variety of disciplines. For example, a lead abatement program might be an excellent Service Learning project in a health or nursing course. Preservation of open space or wetlands could be a fascinating Service Learning project in a political science, economics, or public policy course, as well as the obvious environmental studies or biology courses.

In discussions of how to best integrate Service Learning into a college curriculum, the issue of whether or not it should be mandatory often comes up. In the case of the biology course, all students were required to be involved, but the course was designated "Service Learning Required" in the course catalog. In the economics course, students had the option of doing a Service Learning project or a more traditional research paper. It is perhaps easier for the instructor to have all students involved in the same project, but offering a Service Learning option has been a popular way at Sacred Heart University for many teachers to begin their involvement.

Because of the interdisciplinary nature of both of these environmental projects, students not only became excited about their course work, but they also learned to make links to other courses. Both Service Learning projects involved teamwork and problem solving skills. The fact that many students volunteered to stay involved in each of the projects means that they connected with the community in making a positive change in the environment. Their problem solving and communication skills and their commitment will make them valuable citizens in the future in any community, especially when faced with serious and complex environmental issues.

ENDNOTES

¹ Perhaps because one of the students was Jamaican and familiar with many of the local merchants and restaurateurs.

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