

Using Service Learning in a Course Entitled *Biology of Women* to Promote Student Engagement and Awareness of Community Needs and Resources

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Abstract: Service learning projects were incorporated into the curriculum of an undergraduate course entitled *Biology of Women*. The goals of the service learning projects were: 1) to provide students with the opportunity to consider issues pertaining to human biology in real-world settings; 2) to foster student engagement with the community; and 3) to promote student awareness of community resources that are directly relevant to women's health issues. The success of the service learning projects in meeting these goals was assessed via analysis of student reaction papers, classroom presentations, and surveys administered at the end of the semester. Assessment results indicate that the service learning projects promoted student awareness of community needs and resources, demonstrated the relevance of course content to real life, and led some students to consider future service opportunities and/or careers in the field of women's health.

Keywords: service learning, women's health, human biology, student engagement

Introduction

Laboratory exercises are invaluable for exposing biology students to the scientific process and for introducing them to the tools, techniques and model organisms used by scientists to test hypotheses. Yet often, laboratory exercises are inadequate for highlighting the human aspects of biomedical research; they fail to provide students with the opportunity to consider societal needs and the ethical responsibilities of the scientific and medical communities. While these topics can be addressed in classroom lectures and discussions, such settings lack a tangible, "real world" context for most effectively engaging students.

In an effort to "rehumanize" undergraduate science courses, educators are increasingly incorporating service learning projects into their curricula (McDonald and Dominguez, 2005; Wood, 2003). Service learning is defined as "a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience [and] teach civic responsibility" (National Service Learning Clearinghouse, 2006). Service learning projects are known to enhance the student experience in a variety of ways (Kennell, 2000). Firstly, they highlight the value of basic research, as students directly interact with individuals who suffer from

specific diseases or who are striving to improve the lives of those who suffer from these diseases. They provide a "real world" framework within which students can reconsider the types of questions scientists should ask. They enhance classroom discussions, as students share firsthand experiences from their service learning projects. Finally, they promote social activism, and often lead students to consider careers in the field of their service learning project (Ostroff and Brubaker, 2000).

For these reasons, a service learning project was incorporated into the curriculum of an undergraduate course entitled *Biology of Women*. For their service learning projects, students worked with community organizations that specialize in some aspect of women's health. The success of the service learning project in "humanizing" the course material, in enhancing student engagement, and in promoting student awareness of community needs and resources was assessed via student reaction papers, classroom presentations and responses to end-of-the-semester surveys. Assessment results indicate that the service learning projects were successful in meeting the aforementioned objectives, and that they had a positive impact on students' attitudes toward service and their

consideration of careers in the field of women's health.

Background Information on Course

Biology of Women is an undergraduate course offered by the Human Biology Department at the University of Wisconsin – Green Bay. The course is an upper level elective that counts toward the Human Biology major. In addition to Human Biology majors enrolling in the course, a significant number of nonmajors who have successfully completed a two-semester sequence of introductory biology also enroll in the course (typically nursing, psychology, and social work students). Typically, the course is filled to capacity (40 students) with each annual offering.

A summary of the course syllabus is found in Table 1. Final grades are calculated based on students' performance in the following areas: two midterm exams, a final exam, participation in discussion, and service learning projects. Each of the five components counts for 20% of a student's final grade in the course.

TABLE 1: Syllabus for Biology of Women

Week of semester	Topic
1	Women, Science & Medicine
2	Female Anatomy
3	The Menstrual Cycle
4	Gynecological Difficulties
5	Review; Midterm Exam #1
6	Pregnancy and Delivery
7	Contraception & Abortion
8	Basis of Biological Differences
9	Women and Mental Health
10	Review; Midterm Exam #2
11	Menopause
12	Women and Cardiovascular Health
13	Women and Cancer
14	Women and Nutrition
15	Service Learning Project Presentations; Final Exam

Structure and Assessment of Service Learning Projects

Students are introduced to the concept of service learning on the first day of class, as the course syllabus and general course requirements are reviewed. A concerted effort is made to differentiate service learning projects from volunteer work (i.e., there must be a significant "learning" component to the project that provides the student with the opportunity to learn about some aspect of women's health in depth). It is imperative that this distinction be made at the start of the semester, as students begin planning their projects and contacting agencies in the community with whom they will potentially work. Students need to be prepared to convey to their community contacts that they would like to do more than simply answer phones or file documents. While such activities fulfill the "service" requirement of the project (they provide the agency with assistance in meeting community or clients' needs), they don't allow for the in-depth "learning" that is also a critical component of the project. Finally, students are given a list of service learning projects conducted by students previously enrolled in the course, in order to encourage them to begin brainstorming about a potential topic for their own project.

On the second day of class, students are asked to identify areas of interest for their service learning projects. Students are then divided up by interest groups, and small group discussions take place to facilitate the planning of projects. Students often decide to work together to complete their projects, although some students prefer to work independently, so as not to be constrained by the scheduling conflicts they may face when working with other students. As these discussions are taking place, the instructor circulates and provides small groups with additional information about possible community agencies / contacts with whom students have worked in the past.

By the third week of the semester, students are required to submit a written description of their service learning project for approval. The description is expected to include the name of their community contact, as well as details regarding the "service" and "learning" components of the project.

After approval from the instructor, students are expected to conduct 15-20 hours of service learning with their community contact during the remainder of the semester. Upon completion of their project, students are required to submit a three page reaction paper to the instructor that describes the nature of their project (both the “service” and “learning” aspects). Furthermore, students are expected to give a brief (10 minute) presentation to the class that describes what they learned as they conducted their project. The purpose of the oral presentation is two-fold: 1) to inform the rest of the class about the nature of the organization with which the student worked and the services that the organizations offer; and 2) to allow the instructor to assess the depth of learning that took place as a result of the project. Lastly, students are asked to complete a brief survey that assesses practical aspects of the project, as well as student attitudes toward their specific projects and community service in general. Statements included in the survey are found in Table 2. For each statement, students were asked to respond using a variable scale from 1 to 7, with an answer of 1 indicating that the statement was “not at all true”, and an answer of 7 indicating that the statement was “absolutely true”.

Examples of Service Learning Projects

A variety of factors can influence a student’s choice of subject matter for their service learning project. Some students choose projects that address an aspect of women’s health that has affected them personally or has affected a loved one. Others choose to learn about an aspect of women’s health about which they have no previous knowledge or experience. Still others choose a project simply because it requires a minimal amount of preparation and/or planning (e.g. working with an organization or professional with whom they or an acquaintance already has a connection) or because it allows them to work with their friends.

Listed below are summaries of successful service learning projects that students have conducted in *Biology of Women* (projects were considered successful if they met both the “service” and “learning” objectives of the assignment as defined previously):

- *Assisting local lay midwives with classes on pregnancy and the home birthing experience.* Students who have conducted this particular service learning project have assisted local lay midwives in a variety of

ways. One group of students educated themselves on the topic of nutrition and pregnancy, and then prepared a variety of nutritional foods (e.g. foods rich in calcium, iron and/or folic acid) to serve to expectant parents attending home birthing classes. Others compiled informational flyers on the topic of nutrition and pregnancy to hand out to class attendees. During another semester, students worked with midwives to research and compile information on other topics (e.g. the differences between hospital vs. home births) to distribute to expectant parents who are interested in learning more about the home birthing experience.

- *Working with the Women, Infants and Children (WIC) Program.* The WIC program is a federally funded program that provides low-income women and children with nutritious foods, nutrition counseling and referrals to healthcare and social workers. A number of students have elected to conduct their service learning projects with the local WIC office. Students have assisted the WIC program in a variety of ways, including researching and presenting (via colorful bulletin boards or informational brochures) information on specific nutrition topics (e.g. the importance of calcium for optimum health in mothers and children) in a manner that is accessible to individuals of all educational levels. Additionally, students have conducted cooking seminars for mothers and toddlers, promoting awareness of the importance – and ease – of preparing healthy and fun meals and snacks for the family.
- *Promoting awareness of risk factors for breast and cervical cancer among university women.* Several groups of students have assisted healthcare personnel from the university’s student health center and/or local hospitals to organize educational activities on campus that promote awareness of risk factors for cancers that are unique to women (e.g. cervical cancer) or more prevalent in women (e.g. breast cancer). These educational activities have ranged from seminars on the proper method for conducting self breast exams to information booths in the campus union that provide educational materials on the link between infection with human papilloma virus and cervical cancer.

TABLE 2: Service learning (SL) Survey and Results. The survey used a variable scale from 1 to 7, with an answer of 1 indicating that the statement is “not at all true” and an answer of 7 indicating that the statement is “absolutely true”.

Statements	Response (mean + SD)
1. <i>At the start of the semester, I approached my SL project with a positive attitude.</i>	4.9 ± 0.21
2. <i>I experienced difficulty in finding a community contact / agency that was willing to work with me for my SL project.</i>	3.14 ± 0.26
3. <i>I am satisfied with the amount of information I learned about women’s health while conducting my SL project.</i>	5.56 ± 0.18
4. <i>The work I conducted during my SL project was of great benefit to the community.</i>	5.08 ± 0.19
5. <i>I would have preferred the option of writing a term paper rather than conducting a SL project.</i>	2.91 ± 0.26
6. <i>My SL project made the coursework in Biology of Women seem relevant to real life.</i>	5.44 ± 0.18
7. <i>Too much time was required to complete my SL project.</i>	3.27 ± 0.21
8. <i>My SL project enhanced my learning of course material.</i>	4.81 ± 0.02
9. <i>The agency / organization / individuals with whom I conducted my SL project valued the service that I provided.</i>	5.71 ± 0.20
10. <i>My professor provided a clear definition of SL at the start of the semester.</i>	6.21 ± 0.15
11. <i>My SL project affected me at a personal level.</i>	5.33 ± 0.22
12. <i>I would take another SL course in the future.</i>	5.39 ± 0.21
13. <i>This was my first SL project.</i>	5.00 ± 0.34
14. <i>I plan to continue working with my SL organization / contact in the future.</i>	3.76 ± 0.31
15. <i>My SL experience has led me to consider a career in the field of women’s health.</i>	3.60 ± 0.25
16. <i>My SL project has made me more aware of community needs.</i>	5.64 ± 0.20
17. <i>My professor provided me with enough opportunities to reflect on my SL project.</i>	5.83 ± 0.16
18. <i>Please estimate the total number of SL hours conducted this semester for Biology of Women.</i>	19.73 ± 1.63

- *Assisting at local domestic abuse shelters.* Given that domestic abuse is a significant threat to women’s health, many students choose to conduct their service learning projects with local domestic abuse shelters. Training for positions at the shelters requires a significant time commitment (often 15-20 hours), and thus students who choose to conduct their projects in this context often devote a total of 40+ hours (training + service) to this endeavor. Students have served in a variety of capacities at local shelters, including serving as victim’s advocates and providing coverage of the shelters’ 24 hour hotlines.
- *Promoting a healthy body image among young girls.* Students interested in the prevention of eating disorders have taken some creative approaches to promoting a healthy body image among young girls. Some have designed and

conducted classroom activities at local elementary schools that celebrate differences in appearance and promote an awareness of the ways in which the media (e.g. television, magazines) influences the way girls feel about their bodies. Other students have served as leaders for local Girl Scout Troops, organizing activities that 1) promote physical fitness by introducing girls to a variety of fun physical activities; 2) educate girls about basic nutrition facts; and 3) promote an awareness of the signs and symptoms of eating disorders.

- *Conducting activities with young girls to enhance their science self-efficacy.* Often, students express an interest in conducting a service learning project that stimulates young girls’ interest in science and enhances their confidence in their abilities to engage in the scientific process. The ultimate goal of such

- projects is to encourage young girls to consider a career in the sciences and thereby increase the representation of women within the sciences. To this end, students have helped plan, prepare and participate in a local weekend science event, create and experiment with flying machines. A photo of an undergraduate student participating in an experiment at the event is found in Figure 1.



FIG 1. An undergraduate student works with a group of girls to conduct experiments with their self-designed airplanes at a science event sponsored by the Girl Scouts, entitled “Wings, Strings and Flying Things”.

Results and Discussion

Assessment of practical aspects of service learning projects

Both survey results (Table 1) and verbal feedback from students indicate that the time spent at the beginning of the semester providing a comprehensive definition and several specific examples of service learning is beneficial to students (statement 1). It allows them to judiciously choose the project and organization with whom they will work, in order to participate in an experience in which a significant amount of *learning* (and not just *service*) will occur. It is crucial to the success of the project to make the distinction between service learning vs. volunteer work, since most students reported that even though they had conducted volunteer work previously, this particular project was their first encounter with service learning (statement 13).

Interestingly, while students in general reported that they approached their service learning project at the start of the semester with a positive

sponsored by the Girl Scouts, which specifically addresses these goals. During this event, entitled “Wings, Strings, and Flying Things”, students work with young girls to explore the field of aeronautics and attitude (statement 1), nearly half reported that they would have preferred to write a term paper rather than conduct a service learning project (statement 5). This response likely reflects the fact that many students often encounter scheduling conflicts when conducting their projects, and feel that the project requires too much time outside of class to complete (statement 7). Others are frustrated by the difficulties they faced at the start of the semester in identifying an organization that is willing to collaborate with them on their project (statement 2). While the instructor provides students with a list of organizations in the community that are willing to oversee projects, many students develop unique projects for which it is often difficult to identify an appropriate sponsoring agency. Nevertheless, even in light of these difficulties, overall students report that they would take another service learning course in the future (statement 12), and that the service learning experience had a positive impact both on their learning of course material and their awareness of community needs and resources (as is described in detail in the next section). As one student commented in her response paper, “Initially, the project felt like just another dreaded expectation that would consume 15-20 hours of my time. Forty-six hours of service time has passed by, and I must admit that it turned out to be a very valuable assignment. I have benefited from the educational aspects, met a lot of interesting people, been offered a job in the near future, and helped others in their struggles concerning abuse issues”.

The positive impact of the service learning experience on students’ depth of learning of course content is evident not only from survey results but also from students’ engagement in classroom discussions throughout the semester. Responses to survey statements indicate that students are satisfied with the amount of information they learn about women’s health while conducting their projects (statement 3), that the project enhances their learning of course material (statement 8) and makes their coursework seem relevant to real life (statement 6). This learning is most evident during classroom discussions, as students participate much more thoughtfully and inquisitively when topics are discussed that are directly relevant to their service learning projects. As one student stated in a reaction paper on her service learning project with Planned Parenthood, “ When we got to [the topic of contraception] in Biology of Women, I felt like I had

an extra edge of experience...compared to the students who did not go through training with Planned Parenthood”.

Furthermore, service learning projects provide students with the ability to offer tangible, “real life” accounts of their experiences with the topic at hand, which greatly energizes classroom discourse. This is often evident during discussions on the topic of domestic abuse. Students who have experienced or witnessed domestic abuse are often able to comprehend the cycle theory of violence, and can comprehend how women often become trapped in situations of domestic violence. Students who do not have this firsthand experience, however, often cannot understand the cycle, and sometimes will place responsibility for the abusive behavior on the victim, who neglects to leave the relationship. The impact of a service learning project that deals with domestic abuse can drastically change students’ views on this issue; the anecdotes and experiences from such projects that are shared in class are invaluable for providing other students with insight into this phenomenon. As one student commented in her reaction paper, “It is difficult for someone who has never experienced these horrible situations to imagine the kind of inner pain and turmoil the victims live with on a daily basis. Because of that, I think too many people hold incorrect assumptions about victims of domestic violence and sexual assault. It is essential that our society is correctly informed that these things do exist and that too many women, children and men are being victimized. Only when we are accurately informed can we empathize, open our hearts, and truly put an end to these devastating events”.

Assessment of the impact of service learning on students’ awareness of community needs and resources

A long term goal of the service learning project is to create awareness among students of the resources that exist within the community for addressing women’s health needs. Students gain this awareness not only from conducting their own specific projects, but also from learning from their peers’ service learning experiences (often through end-of-the-semester presentations). At times, this information is immediately relevant to students (e.g. community resources that help women with eating disorders), and at other times this information will likely prove to be valuable to students in the future (e.g. local support groups for women who have been diagnosed with breast cancer). In either case, students report that they greatly value the opportunity to learn of these community resources through their

peers’ presentations at the end of the semester (statement 17).

The service learning experience also creates an awareness of community needs (statement 16). Time after time, students report in their reaction papers that the organizations with which they worked are “understaffed” or “lack resources”. In light of this, many students reported that the service they provided to their agency was greatly valued (statement 9) and that they felt that their project was of great benefit to the community (statement 4). Some, but not all, students reported that they intend to continue working with their service learning agency in the future (statement 14). One student who worked at a home for pregnant teens reported that “All around, this has been a great experience for me. I learned a lot about life and finally understand the perks of volunteering...[it] made me feel very good about myself and gave me a feeling that I was actually doing something to make a difference. I have decided to continue volunteering. I want to thank you for this project; it really affected my attitude about volunteering”. In fact, the majority of the class indicated on the survey that their service learning project had affected them at a personal level (statement 11).

Impact of service learning on future career goals

Both survey responses (statement 15) and verbal feedback from students have indicated that the service learning experience in women’s health has led some students to consider (and in some cases, pursue) a career in the field of women’s health. One former student now manages a Planned Parenthood clinic. Another is conducting graduate work to become a certified nurse midwife, and still others have obtained permanent full-time positions at agencies that deal with sexual assault and domestic abuse issues. Thus, in light of these outcomes, it appears that the service learning experience is a valuable tool for introducing students to career options that they may not have considered had they not conducted their service learning projects.

Conclusions

In conclusion, results from surveys, student reaction papers and presentations indicate that the service learning project in women’s health is a valuable component of the course. It fosters student engagement both within the classroom and the community, provides a “real life” context for information that is learned in the course, and creates an awareness of community needs and resources. For these reasons, the service learning project will

continue to be included in the curriculum of Biology of Women. Future studies are planned to assess the long term impact of the service learning projects on students' volunteer activities and career choices.

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