Impact of a Service-Learning Project on Student Success in Allied Health Microbiology Course

Donna M. Cain
Department of Biology, Collin College, McKinney, TX 75071

INTRODUCTION

Service learning is one of several “high impact” learning strategies that is currently being encouraged in higher education today, particularly at undergraduate institutions (2). The goal of service learning is to encourage students to apply knowledge learned in the classroom to real-world situations through volunteer work that benefits the community (3). Studies have shown that student engagement in service learning results in improved retention and academic success, enhances students’ involvement in the community, fosters increased interaction with classmates outside the classroom setting, and helps improve students’ confidence (2).

Although some academic disciplines adapt easily to service learning, designing a meaningful service-learning project that effectively connects course content with community service in science courses can be particularly challenging (1). These challenges are especially relevant in a field such as microbiology where biosafety concerns and prohibitive costs preclude many potential laboratory-based projects. This paper describes the implementation of a health-education service-learning project in a microbiology class populated primarily with preallied health students (prenursing, dental hygiene, and respiratory care), and analyzes the impact of the project on the students’ academic success.

PROCEDURE

Students in a sophomore-level microbiology lecture course at a community college were given two options for their semester group project: a service-learning project or a class presentation. The service-learning option was offered in conjunction with the community’s annual health and safety fair, which is held every spring on the college campus. Working in groups of two to three, the students conducted research on a health topic of their choice (subject to approval by the instructor) that related to the control and/or prevention of an infectious disease covered in the course curriculum. Topics chosen included Methicillin-Resistant Staphylococcus aureus (MRSA), Human Papillomavirus (HPV), Clostridium difficile, and Neisseria meningitidis. Each group was responsible for designing a handout such as a brochure, flyer or newsletter, as well as creating a small poster display, to educate the general public about the topic. After submitting a rough draft of their handout and poster, the instructor worked closely with the students to edit and revise both documents to ensure that the information presented was intelligible and accurate, and that references were properly cited. The groups hosted a table at the health fair, distributing their handouts to attendees and answering questions. Although not required, many of the groups decorated their tables with stuffed bacteria and other visual aids, and gave out freebies like bookmarks and sample bottles of hand sanitizer. One group even wore matching t-shirts with a MRSA logo on them. After the health fair, each student was required to write a reflection paper about his or her service-learning experience. A detailed description of the assignment and time-line is presented in Appendix 1.

Grades for the service learning project were assigned according to the following criteria: design and content of handout (35% for first draft and 10% for final version), design and content of poster (20%), completion and documentation of service-learning hours (15%), completion of required service-learning paperwork (5%), and the reflection paper (15%).

DISCUSSION

A total of 21 out of 45 students in two course sections participated in the service-learning project. The student projects were well received by both the attendees and the organizers of the health fair. In their reflection papers, the service-learning students reported that they felt the experience helped them have a better understanding of the relevance of the material they were learning in lectures. Although the final lecture average of the service-learning students was 3.6% higher than that of the other students, the difference between the final grades of students who participated in the service-learning project versus those...
who chose the class presentation was not statistically significant \( (p = 0.26) \). However, student comments reflected that participation in the service learning project had an extremely positive impact on the students involved. One student wrote, “I appreciated being part of a program that was geared toward educating as well as improving the health of the community. I felt part of something that was important.” Another student commented, “It was fun being the person who was educating instead of the one being educated. It is an important position and I was glad I could be a part of it.” Still another student stated, “What began as an assignment I felt just needed to be checked off in order to pass a class ended up as a tremendous learning experience. You can learn so much from teaching others!” Students also commented that this project, more so than other group projects they had worked on in the past, taught them how to effectively work as a team. A few students even wrote that the project had increased their confidence in their own ability to speak in public.

Across the board, all of the students who participated in this service-learning project reported that the experience affirmed their career goal of working in a health-care field and generated a genuine interest in performing more community volunteer work in the future. Every one of the students felt that the experience was meaningful.

**CONCLUSION**

In summary, implementing a health education-based project for a microbiology class of preallied health students was a successful strategy for getting students involved in service learning while maintaining a strong connection with the course content. Although the impact of service learning on the final course average was negligible, there was a positive correlation between service learning and other outcomes, including improved critical thinking skills, teamwork, engagement with the community, and student confidence. This service-learning project could easily be adapted for any microbiology course that targets students who are pursuing a career in health care.

**SUPPLEMENTAL MATERIALS**

Appendix 1: Project checklist and timeline

**ACKNOWLEDGMENTS**

The author declares that there are no conflicts of interest.

**REFERENCES**