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Using Student Created Service Learning Projects in Environmental Science to Increase Student Engagement.

Margaret Hunter

Dept. of Engineering, Hofstra University

Deborah Hecht

Center for Advanced Study in Education, CUNY Graduate Center

Developing Good Heart in STEM

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Goal

Increase student learning and engagement in environmental science

Method

Students create, through co-operation with community partners, a service project in environmental science



The seminar course

- Familiarize students with the community
- Familiarize students with environmental issues
- Selection of a project type or topic
- Group formation through common interest
- Student discussion with community partners
- Activity planning and timeline development
- Assessment plan for activity
- Implementation and sharing



Assignments and Assessment

- Student developed definitions of volunteering and service learning
- Exploring the community
- Community project plan and timeline
- Reflection assignments-before and after project
- Exploration paper
- Student survey



The Projects

- Group 1: Performance fundraiser for Heifer international
- Group 2: Watershed activity for a Brownie troop
- Group 3: Cleanup/awareness event for an on campus bird sanctuary/sump
- Group 4: Watershed activities for a family shelter
- Group 5: Environmental and energy fair for a community in NYC
- Individual Project: Organic food guide for skeptics



Paper Assignment

Warm up exercises

1. Identify, in an Introduction to Environmental Science text, the concepts which apply to your service learning experience.
2. Define five of the concepts and apply them to your experience.
3. What knowledge of this topic is required to complete your service experience?

Paper assignment

Identify the underlying environmental issue for the service experience, research the issue, and make recommendations for inclusion in a semester long course. Why is the environmental problem so significant? Describe the evidence you have to demonstrate this.



Student Demographics

- 17 students submitted the survey,
- 3 sophomores, 7 Juniors, and 7 seniors
- 13 female and 4 male
- Majors-5 Political Science, 2 Music, 3 Business, 4 Math or Science and 3 Education



Assessment Results

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Service-learning fit the content of the class.			1	4	12
Service-learning was well organized.	1	2	6	6	2
The service-learning in this class was interesting.				8	9
I felt prepared to develop a service-learning project.		2	4	9	2
The service-learning project I designed was valued by the community.			1	11	6
Service-learning helped me learn more academic content than I would have learned in a non-service-learning class.		6	3	3	5
Having service-learning in this class helped create an environment where I was more comfortable speaking up.			6	6	5
I recommend that The Intro. To Environmental Systems class do service-learning.		1		6	10
I learn more when courses contain hands-on activities.			5	4	8
I prefer it when classes make connections to learning in school when course materials real-life rather than teaching theory.			1	5	11
I like it when I get to make decisions in my work.				5	12
I think it's important to contribute to your community.					17



7. Did your involvement in service-learning enhance your understanding of the course material? Yes No

If yes, please describe how.

9. Did the service-learning component of this course meet your expectations?
Why or why not?

10. What was the most important aspect of doing service-learning as part of this class?

13. What suggestions, if any, do you have for improving the service-learning in the Intro. to Environmental Systems Course?

Please explain.

Parts of this survey were adapted from The Higher Education Service-Learning Surveys (1999) developed by D. Díaz-Gallegos, A. Furco, & H. Yamada.



Results of Survey

Question 7: Thirteen students thought the involvement in service learning enhanced their understanding of the course material.

Question 9: Most said the service learning experience met their expectations with comments such as they liked the project portion either the creation of their own project or the ability to complete the project were frequently cited. Some wanted more organization/structure or wanted to accomplish more on their project or have a better impact.

Question 10: Most students listed giving to the community as an important aspect, several listed the process of planning and or implementing the project, one used the word empowered to describe the ability to do and complete their own ideas, and several listed the hands on or real world experience as important.

Question 13: More organization and lecture on topics combined with the project. More guidelines and maybe a packet with information and worksheets to plan the project. Several mentioned more class time for the different groups to share during the process. More time on projects was frequently mentioned including starting earlier. One student suggested a small budget for each group.



Student Reflections

Group 1: Overall positive experience, gained knowledge of the goal of Heifer international and organizing a large event, surprised by community response, and one student felt more a part of Hofstra.

Group 2: Increased knowledge and awareness of water pollution, positive experience, and one student is no longer afraid of taking a science course.

Group 3: Students had difficulty in finding a topic but thought this added to the experience, positive experience because of successfully working in a group, and an increased awareness of the environment, sumps and Hofstra.



Group 4: Increased concern for their community, felt positive about the way they impacted children, difficulty of working in a large group but overall added to the success, felt they had to be self sufficient because they felt a strong responsibility to succeed, and one student said she had to know the material much better to be able to present it to children.

Group 5: Benefitted from working together, one learned more about recycling the other learned more about organizing a large event.

Individual students: One liked the open ended aspect because it focused the learning on the experience and not the final result. The other student took on too large a project and was not very satisfied



Conclusions

- Positive feedback about the real life, hands on, aspect and the ability to make decisions on the project topic.
- Students wanted more structure to the process
- Students did not perceive this as the best way to learn content knowledge.
- However, in the written comments most described gaining knowledge.
- Successful completion of project is important.



Questions?

References:

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