

Effects of Sustainability Across the Curriculum on Students' Environmental Attitudes and Behaviors

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Background



Penstemon Wildflower - Inspiration for the name of the project

While sustainable living and awareness has generally held a grassroots structure, it has become increasingly evident that the process of spreading awareness and education on sustainability must also come from the top. In other words, the sustainability revolution needs leaders -- leaders committed to spreading awareness and making interdisciplinary connections in order to cultivate a more sustainable society. Last summer, five Santa Clara recognized a need for such leadership and thus created the Penstemon Project. The Penstemon Project is just one of many projects around the nation under the guidance of the Association for the Advancement of Sustainability in Higher Education. The program began with a summer workshop for professors from diverse disciplines -- from English classes, to business and engineering classes -- all committed to incorporating sustainability into their class structure.

As the 2007-08 academic year has drawn to a close, we couldn't help but wonder: just how effective has the Penstemon Project been? Does incorporating sustainability across the curriculum really impact the attitudes and behaviors of Santa Clara students? There is some existing research on the Penstemon Project, but never before has there been research conducted to gauge impacts on students. Our Slurp project thus investigates whether there has been a measurable difference in attitudes and behaviors among students that have taken classes by Penstemon-trained professors.

From Santa Clara Magazine: "The mission: promote sustainability across the curriculum. The method: bringing on board faculty from disciplines as diverse as business and mathematics, civil engineering and religious studies—not to mention biology."



Sherry Booth and John Farnsworth, one of the founders of the Penstemon Project at Santa Clara University



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Method

Purpose: The purpose of both studies was to test the impact of the Penstemon Project at Santa Clara University on students' awareness of sustainability.

Study 1

Hypothesis: Students in the Penstemon classes will have more environmentally conscious attitudes and behaviors than the students in the Non-Penstemon classes.

Independent Variable: Whether the class is affiliated with Penstemon or not.

Dependent Variable: Scores on an environmental attitude scale and behavior scale.

Participants: Students in two Penstemon classes and one Non-Penstemon class.

Procedure: Study 1 was conducted during week 8 of winter quarter. Students in each class filled out a survey on environmental attitudes and a survey on environmental behavior. The scale used to test environmental attitudes was the New Ecological Paradigm (NEP), an established and tested survey. The environmental behavior scale was a scale used by Dr. Brook at Santa Clara University.

Study 2

Hypothesis: During week 3, there will be no statistically significant difference between students' awareness of sustainability in Penstemon classes and non-Penstemon classes while during week 8, students in Penstemon classes will have more environmentally conscious attitudes and behaviors than those in non-Penstemon classes.

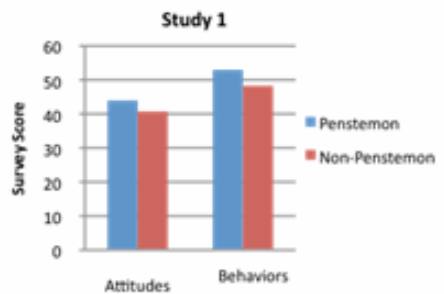
Independent Variable: Whether the class is affiliated with Penstemon or not.

Dependent Variable: Scores on an environmental attitude scale and behavior scale.

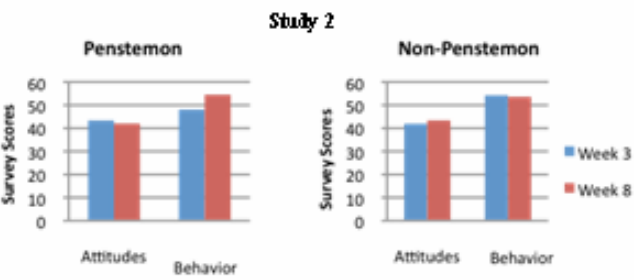
Participants: Students in four non-Penstemon classes and six Penstemon classes.

Procedure: The same surveys used in Study 1 were used for Study 2. The surveys were administered twice during spring quarter. The first time they were given out during week 3 of the quarter. The second time they were given out during week 8. This was to test the difference over time. Over the five weeks between surveys the professors of the respective classes taught their sustainability component of the class which was the Penstemon project. At the end, the surveys were collected and the scores were analyzed.

Results



The results for Study 1 show that at the end of the quarter, students in Penstemon classes scored higher on the attitude and behavior scales than students in Non-Penstemon.



The results for Study 2 show that students in Penstemon classes scored slightly higher on environmental attitudes in week 3 than week 8 but higher on environmental behavior in week 8 than week 3. Students in Non-Penstemon classes scored slightly higher on environmental behaviors in week 3 than week 8 but higher on environmental attitudes in week 8 than week 3.

Discussion

Our results imply that incorporating sustainability topics into curricula impacts students' environmental behaviors. Although our results did not show an impact on attitudes, there were several variables that could not be accounted for.

- Such variables include, but are not limited to:
 - To perform a t-test to determine if the results are statistically significant or due to chance, it is necessary to track each individual's survey responses from the beginning of the quarter to the end. Due to privacy issues this was not possible for this study but could be used in future research.
 - Due to the small number of Penstemon-affiliated professors that taught during spring quarter, our sample size was not ideal. For better results, it is necessary to have a bigger sample size. Also, our two samples (Penstemon classes and Non-Penstemon classes) were not equal in the number of students surveyed or the subject matter of the class. For future research, samples should be equal in numbers and content to avoid confounding variables.
 - Because of organizational issues, it was not possible to survey classes during the first and last weeks of the quarter. Instead, classes were surveyed during week 3 and week 8 of spring quarter. Five weeks is not sufficient to track measurable changes in attitudes and behaviors.
 - There was a noticeable difference in sample size from week 3 to week 8. This could be due to students who dropped the course or students who were absent. This difference in numbers should be accounted for but since we did not track individuals it was not possible to do so.
- Although there were several issues with this study, results do show some possible impacts of the Penstemon Project. Future studies should use this study as a guiding tool to support and improve the Penstemon Project.

Sources:
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Method