Can Counter-Narratives and Participatory Science Improve Environmental Efficacy, Attitudes, and Pro-Environmental Behaviors Among College Students?

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Motivation & Questions

- Motivation: Dr. Brock's talk during Faculty College opened my eyes to the power of counter-narratives and advocacy.
- Problem: Many students feel powerless to resolve environmental challenges in their community (Bitting & Merricks, 2023).
- > **Objective:** This SoTL project seeks to break 'eco-inertia'. by



Valuing Nature



- In general, both female and male students value nature.
- The interventions did not change their perception on the

issues?

Students are moderately

environment (Figure 4).

The interventions did not

of environmental concern.

significantly change their level

concerned about the

Number of PEB Which, if any, of the following have you done within Scale w the PAST 12 PRE POST MONTHS?

increasing students' environmental self-efficacy, attitudes, and pro-environmental behaviors. In other words, this equityminded SoTL project aims to empower students.

> Questions:

- 1. Are certain groups of students more environmentally inclined than others? (gender differences)
- 2. Are the interventions successful in increasing student's self-efficacy, attitudes, and PEB?

Equity-Minded Approach

- My equity-minded approach included three interventions:
- **1. Empowerment:** I shared successful stories of young people making an impact in their neighborhood (Curtis Bay case study) and had students research environmental justice issues in their community.
- 2. Activism: Students wrote and sent two letters to their representatives about environmental issues relevant to their lives.
- 3. Participatory Science: Students used the NASA's Globe Observer app to support scientists' work by collecting cloud data (Figure 1).









value of nature (Figure 3).

Female Male Figure 9. Number of pro-environmental behaviors.



- The interventions significantly increase the number of PEB, from 2.1 to 3.4 (Figure 9).

Reflections

How effective was the EJ activity in raising awareness about things happening in your community? (Figure 10)



"This activity was very effective in raising awareness about things happening in my community. ... If I wouldn't have done research on this, I wouldn't have know that there was this problem in my community."

Figure 10. Environmental awareness word cloud

- Do you think your letters to your senator could have an impact?
- About half of the students felt their letter could have

Do you think your participation collecting data could have an impact?

"I believe it did! The more data collected for GLOBE, the better. And I contributed to that." *"It was a cool assignment to do,"* however I don't see it having a huge impact."









Conclusion

Activities that promote environmental awareness, empowerment, advocacy and participation lead to an increase in proenvironmental behaviors which in turn boost self-efficacy (Figure 11).



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The Setting

- Study Group: eighty students enrolled in the 8-week online GenEd Global Environmental Challenges course.
- Fifty-two students completed the pre- and post-survey, the reflection, and at least two activities (success rate = 65%).
- Instruments: Two anonymous surveys and one reflection (Figure 2).



Figure 2. Workflow.

Analysis: Paired sample student's t-tests.



| Recycle | Harmful products | Shopping bags | Public transport | Talk about env. issues | Use social media | |
|---------|---------------------|------------------|---------------------|---------------------------|---------------------|--|
|---------|---------------------|------------------|---------------------|---------------------------|---------------------|--|

Figure 7. Examples of pro-environmental behaviors.



Figure 8. Five point Likert scale.





