

Fostering Environmental Activism through Community-Based Research Investigations

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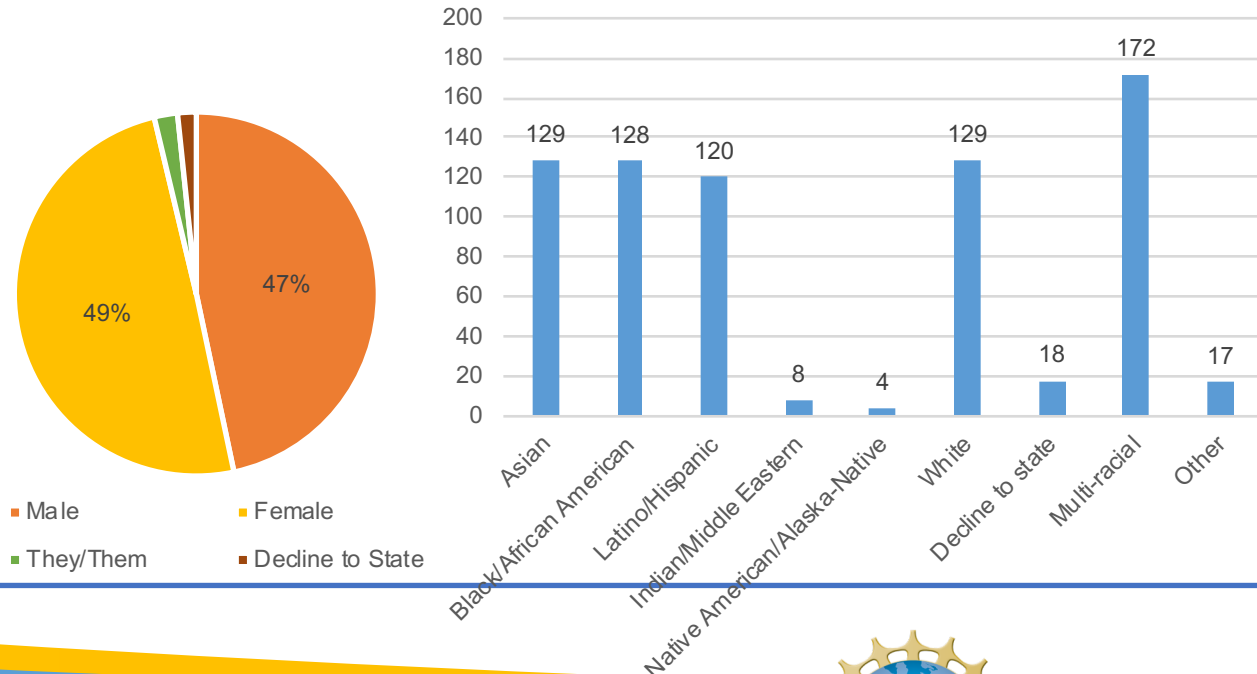
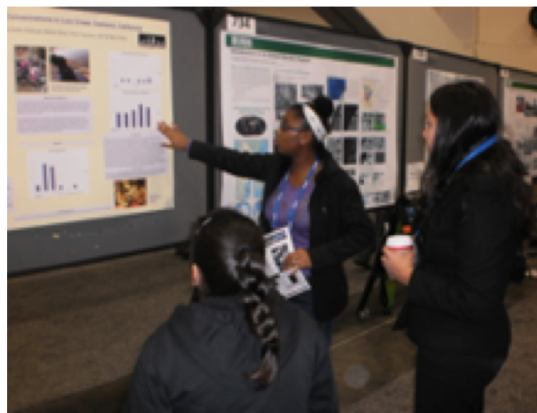
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Abstract

In the course of conducting a study to assess the scalability of a university-based outreach program designed to increase clean energy-related STEM content understanding and awareness of associated career pathways, an important secondary line of research evolved. This particular research sought to examine the program's guided environmental quality investigations and to assess their capacity to mobilize youth to become active in addressing issues related to their environments and/or communities. Findings to date indicate that students whose science identity increased through engagement in program activities also experienced an increase in interest and capacity to engage in environmental activism.

Learning Environment

The Clean Energy Literacy and Leadership (CELL) Pathways program was designed to provide high school aged youth with inquiry-oriented, STEM skills-building activities that foster working understandings of the relationship between various approaches to energy use and environmental impact. Developed and facilitated by the East Bay Academy for Young Scientists (EBAYS), based at U.C. Berkeley's Lawrence Hall of Science, a key component of CELL is community-based research investigations aimed at assessing local air quality.



Research Question

Can the CELL Pathways program experience support students' development of environmental activism identities?



Methods

CELL pathways programming was presented in both in-school and after school contexts as either an enhancement component of ongoing courses or as a stand alone set of experiences. Activities were presented by trained staff members during 60-90 minute sessions, 2-3 times per week at participating program sites. Activities were arranged in modules that presented a combination of hands-on, inquiry-oriented skills development and action research activities. The following data sources were used in the study:

- ❖ Activism Identity and Commitment Survey (Klar & Kassir, 2009; Cronbach's $\alpha=.99$).
- ❖ Science Identity Scale (activationlab.org)
- ❖ Program observations
- ❖ Student Interviews

Activist Identity	Being an activist is central to who I am; I am truly commitment to engage in activism; I identify myself as an activist; I make time for activism, even when I am busy; People who know me well would call me an activist
Activist Commitment	I go out of my way to engage in activism; Being an activist is an important reflection of who I am; I take the time I need to engage in activism.

Figure 1. Activity Identity and Commitment, Klar & Kassir, 2009

Results

Activism Identity and Commitment

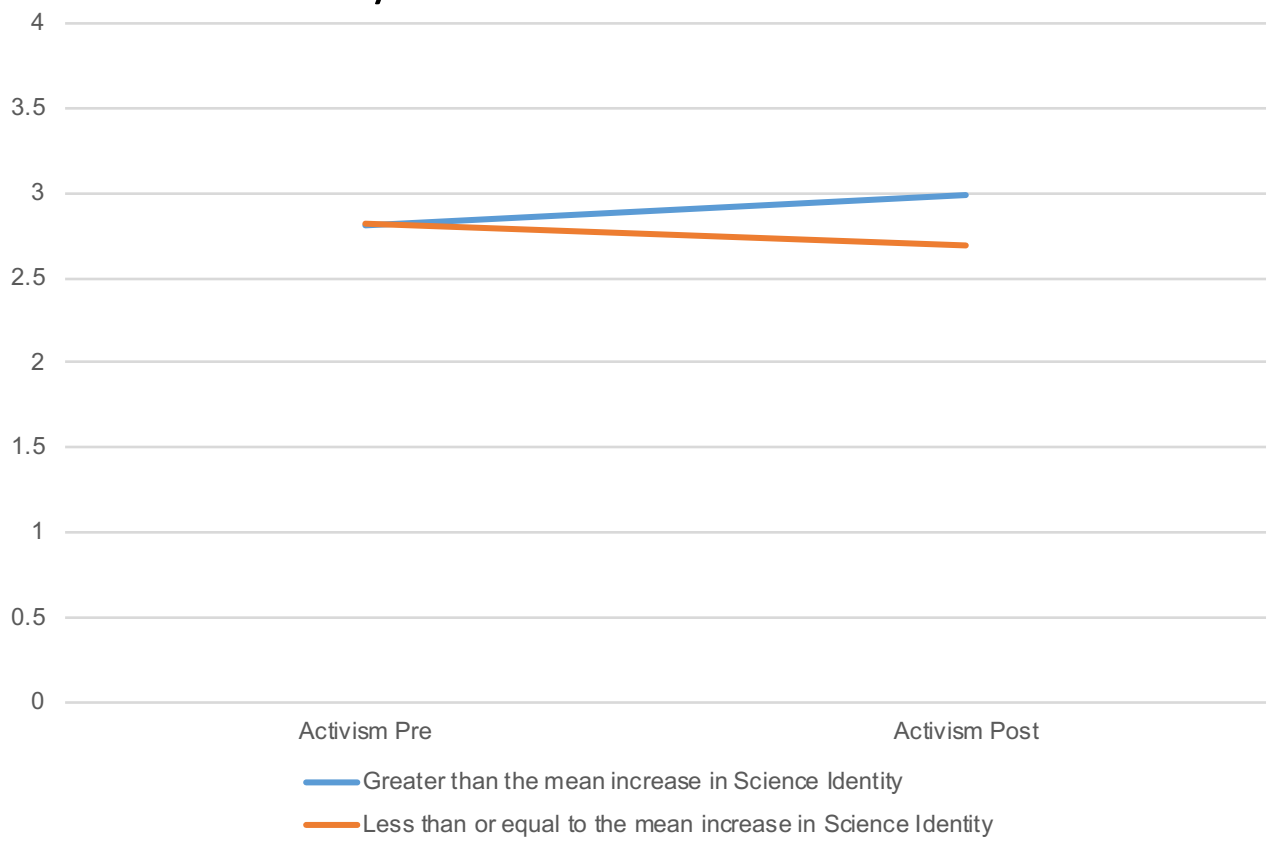
- There is no difference from Pre to Post, overall
- There is a statistically significant difference between girls and boys

Gender Identity Differences Activism Identity & Commitment (N=413)

	Pre	Post
Female	2.97	2.95
Male	2.57	2.61

Interaction between Science Identity & Activism Identity and Commitment

- Students who reported a larger change in science identity were more likely to report an increase in activism identity and commitment



	N	Activism Pre	Activism Post
Students with greater than the mean increase in Science Identity	170	2.81	2.99
Students with less than or equal to the mean increase in Science Identity	258	2.82	2.69

Implications and Contributions

Program Design: Connecting science learning experiences to students' lived experiences and real-world issues is key to fostering student engagement and increasing their perception of the value of science. These findings illustrate the potential this programmatic approach can have on developing more "science minded" and environmentally conscious individuals.

Policy: Findings suggest that it is important to integrate community-based research experiences in school-based science learning. This is a potential framework that can support teachers, schools, districts and communities.

Research: Findings suggest that there is a potential relationship between fostering science identity and activism. Future research can aim to understand the role that community-based research plays in shifting students' beliefs about and connections to social change



"[CELL] did like, you know change how I thought of the world because you know, uhmm... like the more you know about something the more you see things differently. So I mean if you learn more about the place around you and how like it's being affected by what you're doing then uhmm... you're bound to make a change." -- High school student

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