NIH SciEd24

Project Name: Environmental Health Investigators: Developing STEM/Health appreciation & careers with a diverse group of middle school students

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Website: https://stemcenter.siue.edu/outreach/programs/environmental-health-investigators/

If SEPA project, URL for project on https://nihsepa.org/

https://nihsepa.org/project/environmental-health-investigators-building-stem-interest-to-promote-careers-in-the-health-sciences/

Brief Program Description (50 – 60 words): The EHI Summer Research Academy provides middle school students from diverse backgrounds the opportunity to explore environmental and human health connections through authentic scientific methods. The program emphasizes student choice, community relevance, and uses technology-enhanced, inquiry-based, and experiential learning to create an engaging research experience.

Program and Participant Characteristics

Program type (Please check all that apply):

__ Curriculum. __ Out-of-school program

__ Exhibit __ Interactive multimedia

__ Teacher PD

__ Research experiences for students or teachers

Setting(s): ___ Formal ___Informal

Types of participants

__ Students __ Teachers __ Scientists

__ Families __ Public

Grade level(s) of participants

__ PreK __ Elementary (K-5) __ Middle (6-8)

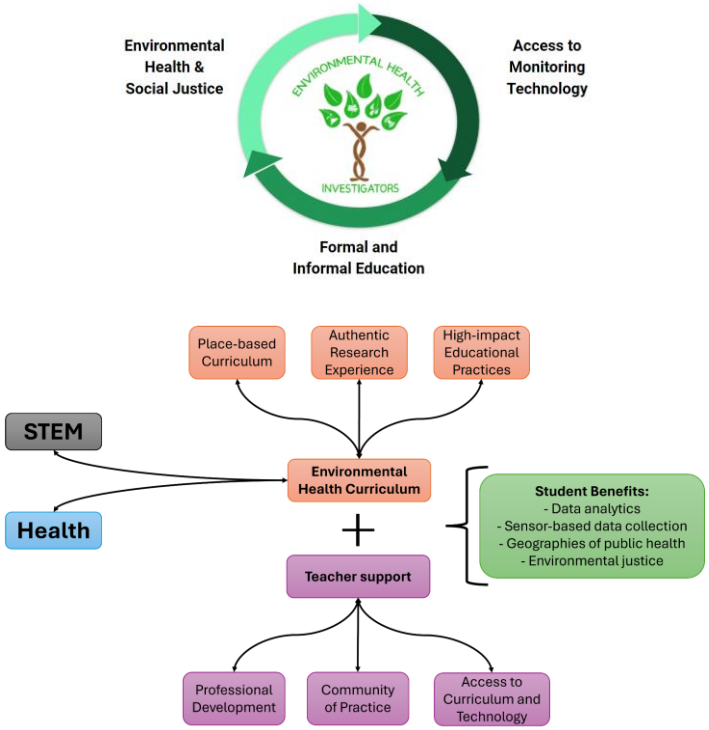
__ High (9-12) __ Adult

Characteristics of the populations you serve relative to DEIA:

. **EHI Student Total:** 292 students impacted

. **EHI Summer Research Academy**: 56 students, gender diverse (55% non-male), and racially diverse (52% non-white)

. **Teacher PD:** 71 teachers,19 districts, 4 states.



Program Activities

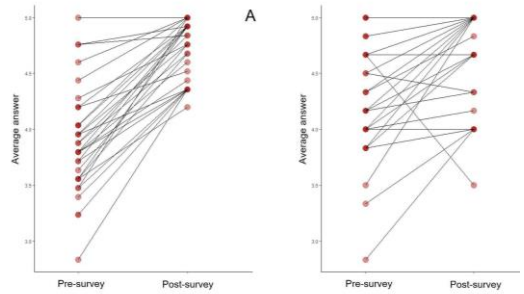
Module Curriculum for grades 6-8

Module 1: Environmental Photovoice

Module 2: Environmental Health

Module 3: Student Research

Teacher Professional Development:



Teachers (N=35) showed an increase in their perception of potential connections with students (A; $p < 0.001$) and confidence in teaching EHI (B; $p < 0.001$), showing that our 2-day PD was effective.

Evaluation

Constructs measured

__ Content knowledge __ Skills

__ Nature of science __ Career awareness

__ Attitudes (e.g., interest, identity, belonging)

__ Quality or fidelity of implementation

Methods

__ Tests/surveys __ Interviews/focus groups

__ Observations __ Artifacts (e.g., student work)

Design characteristics

__ Comparison or control group

__ Pre/post surveys or assessments

__ Longitudinal tracking of participants

Project Lessons Learned

. Community engagement and trust building resulted in better student retention: We established a Community Ambassador group and acted on their feedback (reduced summer program from 3 to 2 weeks, “open house pizza party” the week before summer program, direct recruitment at a partner school). This resulted in a diverse group of students, better retention, and relevant program content.

. Flexible, modular curriculum, 2-day teacher PD and a year-long community of practice: These were successful strategies to recruit teachers and collect feedback on our curriculum and program.

. **Increased awareness but limited career choice impact:** The program successfully increased students' awareness of STEM+Health careers and science appreciation. However, there was no significant change in their career choices. Results indicated that while awareness can be raised effectively, influencing career decisions may require more sustained or varied interventions, which is hard to achieve with middle school students.

Key Accomplishments and/or Findings

To what extent does participation in a summer research academy centered on environmental health increase science appreciation and awareness of and intent to pursue a career in STEM and health fields?

. Interview + pre/post survey, 30 middle school students

. Students grew in their science appreciation ($p < 0.005$) and STEM/health career awareness ($p = 0.001$)

. Science appreciation played a role in STEM/health career choice ($p = 0.001$).