EarthConnections: Integrating Community Science and Geoscience Education Pathways for More Resilient Communities

Pathway Goals:
- Community-centered pathways support and guide students through the many steps and transitions to geoscience-related careers in which they have opportunities to support their communities. These pathways:
  1. are embedded in the local community,
  2. use geoscience to address a local need or problem,
  3. connect learning opportunities at multiple educational levels,
  4. incorporate classroom learning coupled with community service,
  5. offer mentoring and signposting that support students in recognizing and navigating the pathway.

Development Process:
- 1) Regular checkpoint reporting
- 2) Facilitated group discussion
- 3) Progress measured

Example of a local checkpoint:
- A regional alliance in Maine is in the process of identifying and prioritizing the key elements of a pathway. The alliance is using a structured process, with internal evaluators using four to six indicators of strength for each pathway and opportunities to discuss the analysis and any insights or concerns.

Why EarthConnections?

EarthConnections is a pilot for a scalable collective impact alliance that supports the planning and development of community-science partnerships that support students from middle school to career.

The geoscience lag behind most other STEM disciplines in diversity. On top of that, there are few opportunities for geoscience students of any background to develop their scientific skills and knowledge while learning to work with community issues on issues of local importance. There are four mutually reinforcing challenges:
- to develop a diverse geoscience workforce that is able to collaborate with community-science interface. There have been few opportunities to develop the skills necessary to work at the community-science interface.
- Geoscience curricula at all levels are largely disconnected from societal issues, and offer little opportunity to engage in community-relevant science investigations.
- Transitions between academic levels and from school into careers are bumpy—students of color and women leave geosciences in higher rates at each transition.
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Isolated Impact

Collective Impact

A collective impact approach is powerful because it creates a flexible framework and network of resources that can support pathway development specific to local needs and context while aligning the pathways to a common vision of quality and measuring effectiveness through common metrics. Our approach is based on five pillars:
- a shared vision for the elements of the pathways;
- a structured process for creating pathways customized to address local needs and aligned with existing programs, alliances, and culture;
- a set of shared metrics that are used to align pathway designs provide data on the success of the pathways in reaching project milestones.

Embarking in the local community:
The Southwestern Alliance has embedded itself in the community through leveraging existing academic relationships. The alliance brings together teachers and students from the region’s local universities, and other community organizations. It acts to link them to national resources.

Use geoscience to address a local problem:
The alliance has worked with regional organizations to develop and disseminate accurate information about earthquakes. It is also using interventions (teaching workshops, student activities and courses) to engage students with geoscience.

Mentoring and signposting to support students:
The alliance plans to have college students mentor high school students and to have them assist in identifying signposting opportunities or needs.

Pathway Map (right):
- Important components of the pathway include connecting with STEM schools and other educational opportunities; and stations as it continues working to define viable pathways. For example, the alliance plans to have college students mentor high school students and to have them assist in identifying signposting opportunities or needs.

References