Supporting Environmental Educators to Shift Toward Inquiry-Based Instruction

Does a professional development program affect educators’ beliefs, perceived competency, and instruction of science as inquiry?

**BASING THE PROGRAM ON RESEARCH**

Elements that have been effective in helping teachers reform their science teaching and were included as part of the UNLESS professional development program

| Build educators’ value for teaching science as inquiry and address their concerns | Engage in inquiry as a learner and make connections to teaching setting |
| Involve educators in real research | Reflection on beliefs, learning, and future actions |
| Determine the goals of the training together | Mentoring to try new things and stimulate reflection |
| Collaborative work and sharing ideas | Long term program rather than a single day training |

**WHAT IS NATUREBRIDGE?**

- Residential environmental education organization that operates in national parks
- Mission: Foster environmental literacy to sustain our planet
- Recent focus on increasing rigor of environmental science programs through having each student participate in a science investigation
- Yosemite National Park, NatureBridge employs 40 Environmental Science Educators

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**TREATMENT AND METHODS**

About the Understanding Newly Learned Environmental Science Skills (UNLESS) professional development program

- 11 educators chose to participate
- Workshops were once per month from October through March
- Fall semester workshops: Current research with the National Park Service and working together in an investigation related to these topics
- Spring semester: Working in small collaborative groups to lead the rest of the cohort in an inquiry-based lesson

Educators engaged in an inquiry-based lesson presented by their peers

**RESULTS**

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<td>Primary Question: What are educators’ beliefs, perceived competency, and implementation of inquiry instruction before, during, and after UNLESS?</td>
<td>Pre- and Post-UNLESS Survey</td>
<td>Interviews during and after the program; Post-observation interviews</td>
<td>Pre- and Post-UNLESS Concept Maps</td>
<td>Reformed Teaching Observation Protocol</td>
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<td>Secondary Question: What challenges are educators facing in reforming their teaching after being in this program?</td>
<td>Pre- and Post-UNLESS Survey</td>
<td>Post-treatment and observation interviews</td>
<td>Pre- and Post-UNLESS Concept Maps</td>
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Likert items from the Pre- and Post-UNLESS Surveys related to educators’ instruction in elements of inquiry, specifically what they currently support their students to do as part of their science teaching, (N=7).

Percentage of student-driven investigations per month as reported by UNLESS educators after each NatureBridge program with the Science Investigation Tracking Form, (N= 86).

**CONCLUSIONS**

- Educators believed in doing inquiry before and after the professional development program and mostly felt like they had the skills to do inquiry.
- Inquiry instruction increased during and after the program. Educators realized inquiry can be simpler than they thought.
- Some challenges went away after the program while others still existed. Remaining challenges to doing inquiry with students included: weather, time, teacher and school requests, and students’ prior knowledge.