

# Assessing Teachers' Environmental Citizenship Before and After an Adventure Learning Workshop

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## 1. Abstract

This study examines the impact of a workshop on teachers' Environmental Citizenship (EC), a sense of responsibility toward a sustainable society and skills for the sustainable management of Social-Ecological Systems (SES). Workshop goals were to connect academic researchers and local stakeholders with teachers in order to increase teacher understanding of SES as measured through an EC framework. A paired t-test analysis of the pre-post survey suggests that EC of participants increased significantly ( $p=0, \approx 0.05$ ) regardless of workshop location (Boise, Pocatello, or Coeur d'Alene, Idaho). Findings suggest that EC may increase as a result of an educational intervention.

## Terms

<b>Social Ecological Systems</b>	Linked social and ecological systems with dynamic interactions and challenges that include balancing competing demands of economy, society, and environmental health.
<b>Social Ecological Systems Education</b>	Includes knowledge of ecological and social processes, informed decision-making, analysis, synthesis, and evaluation of social-ecological issues while taking moral considerations into account (Zeidler et al, 2005).
<b>Environmental Citizenship</b>	A concept incorporating an understanding of SES, as well as a commitment towards the common good, sense of responsibility toward a sustainable society, and skills to act accordingly for sustainable management of SES (Dobson, 2007).
<b>Adventure Learning</b>	An online learning environment accompanies an adventure-based in-person educational experience, and provides opportunity for collaborative learning (Valeltanos and Kleanthous, 2009). The AL approach is grounded in experiential and inquiry-based learning theory (Valeltanos and Kleanthous, 2009).

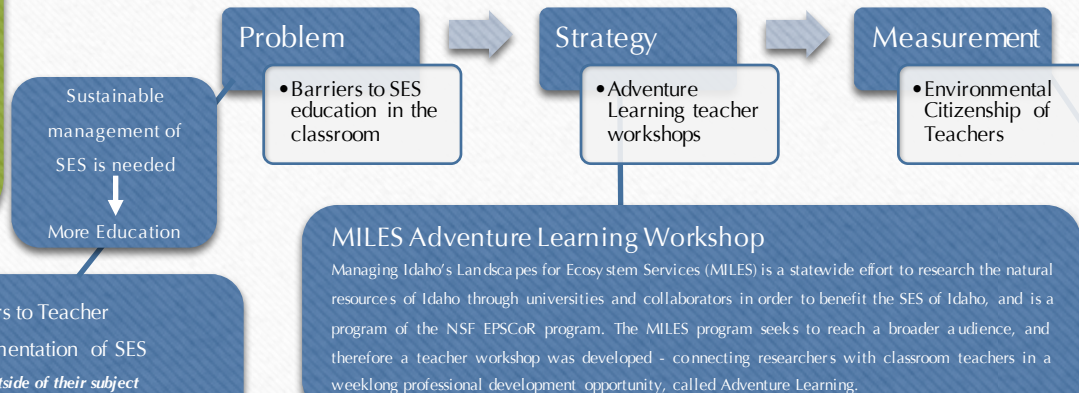
## 5. Discussion

Results suggest:

- Professional development may have a significant impact on participants
- EC can be increased through certain educational interventions
- The EC framework was aligned with workshop goals and outcomes,
- The Adventure Learning workshop model is effective for teacher professional development, across locations and with different facilitators

**Future Directions** – Further development and refinement in of the survey instrument, study of EC in other contexts, and further investigation into the specific activities and lessons that contribute to EC will help to advance our understanding of EC.

## 2. Background



- Three week-long workshops throughout Idaho
- Connecting researchers, stakeholders and teachers
- In-person and on-line participants

**Step 1** In-person teacher participants explore local SES issues with regional experts, researchers, and stakeholders



**Step 2** Discussions and reflections with online participants.

## 4. Results

- There was a significant difference in EC from pre to post survey for all participants, across all constructs
- Workshop location did not significantly affect EC
- The affect of the workshop on EC was significantly greater for in-person than for

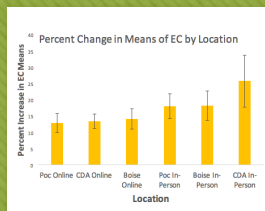


Figure 1: Percent change in means of EC from pre to post survey (n=57) with  $\pm 1$  standard error. Poc = Pocatello, CDA = Coeur d'Alene. Values of n for each group from left to right: 10, 9, 12, 9, 12, 5.

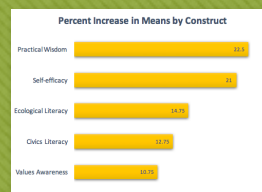


Figure 2: Percent change in means of EC from pre to post survey (n=57) for each of the five constructs of EC (see figure 4)

## 3. Methods

### Develop a Survey Instrument



- Based on the literature related to EC and SES
- Likert-type scale of five points from strongly disagree to strongly agree
- Open-ended and closed-ended response types
- Reviewed by experts and field tested prior to use

### Study Design

- Pre-post intervention case-study design with quantitative analysis.
- A study of three Adventure Learning workshops taking place throughout Idaho.
- Teacher participants completed a pre and post survey measuring Environmental Citizenship and aligned with MILES workshop goals.
- Approved by the Internal Review Board of University of Idaho prior to implementation.

### The Five Overlapping Components of Environmental Citizenship

Developed by Berkowitz, Ford, and Brewer (2005)

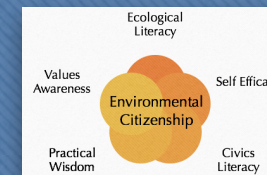


Figure 4: The Environmental Citizenship Framework used in this research

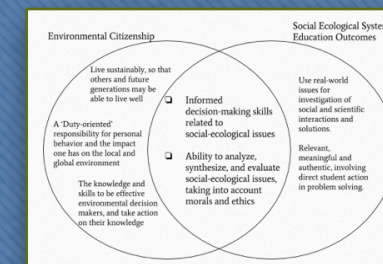


Figure 3: The concept of EC is directly related to SES educational outcomes; the clear conceptual overlap makes the connection between the SES workshop content and EC measurement appropriate and relevant.

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