Persuasion (i.e. social media/meetings campaigns)
Citizen action strategies
Articulate and present conclusions effectively
Legal action
Intention of control
Engage in arguments based on evidence
Ecological systems

Summary

Ecology Project International (EPI) developed a quantitative assessment based on NAAEE Framework for the Evaluation of Environmental Literacy; results demonstrate that our hands-on, inquiry-based educational programs in all the countries we work in, have positive effects on the ecological knowledge, dispositions, and competencies of high school students. This poster show the results found in Galapagos - Ecuador, one of the countries where we work.

Introduction

EPI is a non-profit organization that aims to create an environmentally literate society, where the world's youth are empowered to take an active role in conservation. Through hands-on, inquiry-based experiential field programs, we strive to develop scientific awareness in the hope that an increased understanding of interdependent relationships within natural systems can promote changes in students’ dispositions and behaviors.

Our Programs

EPI’s programs take students out of their classrooms to unique and remote places where they work hand-in-hand with local researchers on endangered species conservation projects. During the 4- to 12-day experience, students contribute volunteer hours by collecting scientific data and participating in field work. They are also immersed in an educational curriculum that, through hands-on lessons including the development of field investigations, ecosystem analysis, and team-building activities, fosters the development of Environmental Literacy in line with the U.S. Next Generation Science Standards and the Framework for 21st Century Learning (ATC21 2012).

The Study

EPI developed a quantitative assessment of Galapagos Ecology Program in its 2015 season. In order to better assess changes in our students, EPI re-designed its evaluation protocol in 2015 according to NAAEE’s proposed framework for the Evaluation of Environmental Literacy (NAAEE 2011) along with the National Environmental Literacy Assessment phase II (NELA 2011). The evaluation tools were in the format of Pre-Post course assessments, with questions representing different topics of the four major variables of environmental literacy: Environmental Knowledge, Competencies, Dispositions, and Behaviors. The questions for each variable were created in collaboration of external advisors and based on different references such as: Middle School Environmental Literacy Survey (MSELS), Secondary School Environmental Literacy Instrument, Science Process Skills Inventory (SPSI) and Children’s Environmental Attitudes and Knowledge Scale (CHEAKS). The response format for each question included multiple option and Likert scale.

Materials and Methods

In total, we recruited and selected 220 local students from Galapagos, who participated in the camps, from the islands of Santa Cruz, Isabela and San Cristobal. These instruments are composed of a questionnaire designed to collect demographic control values and a set of questions that make up the core of the pre/post change in bioliteracy analysis. Over a two month period, pre-assessments were administered at schools of Galapagos by EPI staff. We developed a baseline for knowledge, dispositions, behaviors, and competencies. Post-assessments were administered at the end of the field experience, assessing three variables: knowledge, competencies and dispositions. Behaviors are still in the process of being assessed via a post-post instrument that participants fill six to twelve months after their field experience.

Results

The results indicate that there was a noticeable change in the general bioliteracy of students who participated in the ecology camps conducted by EPI.

- This change had a higher effect in the scientific competences area and in the ecological knowledge area.
- There was no high change effect in all of the environmental dispositions subareas.

Question five noticed no effect respect a change in the develop of new attitudes and concerns towards the environment.

Conclusions

As a result of this first evaluation experience, continued efforts are needed to have effect results in every area of bioliteracy in order to determine which are the lessons from the educational curriculum that require reinforcement to continue having a real impact. However, it's remarkable that the experience, as a whole, is highly positive for the participants.

Acknowledgements

We appreciate the collaboration of the Galapagos National Park Service, Galapagos District of Education and the scientist Dr. Steve Blake of the Galapagos Tortoise Ecological Movement Program.

Literature


WWW.ECOLOGYPROJECT.ORG