Dr. Macarena Parra teaches the Mola-Mola Ecology club (local EPI alumni) how to monitor and protect ConstruCtivist outdoor eduCation & eCologiCal literaCy in the galapagos islands and engages students using the solving. Each lesson builds upon the students' previous knowledge is presented as a framework for environmental inquiry and problem-solving. The curriculum has been carefully crafted to provide students with life-changing outdoor experiences that teach them about the unique biota of the Galapagos, and how to conserve it. Students join Galapagos park rangers in their duties, including wild tortoise monitoring, tortoise nest protection, reforestation, and invasive species eradication, among other activities.

The EPI curriculum places a strong emphasis on competencies related to scientific inquiry as a process to increase critical thinking and creativity in participants.

**Problem**
The Galapagos Islands have become transformed through centuries of human influence, bringing its ecological and social systems to a state of crisis (Walsh and Mena 2013). UNESCO (1978) has made this definition a foundation for their educational framework & built it into their lessons design tool: the Environmental Literacy Wheel (EPI 2014).

**Approach**
Ecology Project International (EPI) and Galapagos National Park (GNP) have teamed up to provide local and international students with life-changing outdoor experiences that teach them about the unique biota of the Galapagos, and how to conserve it. Students join Galapagos park rangers in their duties, including wild tortoise monitoring, tortoise nest protection, reforestation, and invasive species eradication, among other activities. The curriculum has been carefully crafted to provide students with knowledge, competencies, and dispositions required to be ecologically literate citizen and active agents of conservation. The scientific method is presented as a framework for environmental inquiry and problem-solving. Each lesson builds upon the students’ previous knowledge and engages students using the 5 E’s of active learning:

- **Engage** – Use a game or hook activity to discuss a problem or topic of interest in surrounding natural areas. E.g. How would you act out the threat in a giant tortoise?
- **Explore** – Students experiment and experiment on their own and generate questions. E.g. How big are great potatoes and what do they say? What is the effect of invasive plants and how does GNP control them? What is the current and life cycle of your favorite species?
- **Explain** – Guided activity for testing hypothesis through inquiry. E.g. Tortoise monitoring and mark-recapture with GNP assisting tortoise dung in search for seeds, control of invasive blackberries and replanting of endemic Scalesia nigra
- **Elaborate** – Expand or recontextualize new concepts. E.g. How do invasive species, humans, and tortoise interact with each other? What can we do to reduce our environmental impact at home? How are vegetation zones distribution related to the age of an island?
- **Evaluate** – Gauge different levels of understanding, from basic recall exercises to creating and presenting group research projects. E.g. What information would we need to solve problems in our community?

Outdoor experiences, games, and collaborative activities, along with the student’s intrinsic motivation, enhance the learning experience and makes the most of multiple intelligence types. Alumni have consistently reported being more aware of environmental issues, more capable of using the scientific method to investigate problems, and more willing to change their behavior in order to address them.

**Ecological Literacy**
An ‘ecologically literate’ person is defined as someone who demonstrates the knowledge, dispositions, competencies, and behavior to actively engage, individually or as a group, in addressing environmental challenges. UNESCO (1978, NAEE 2011). Ecology Project International (EPI) has made this definition a foundation for their educational framework & built it into their lessons design tool: the Environmental Literacy Wheel (EPI 2014).

**Ecological Literacy Index**
Pre- and post-courses assessments performed by EPI on participants across their programs (N=281) suggest a small increase in ecological knowledge (Cohens d=0.2) and environmentally-friendly dispositions (d=0.3), and a large increase on scientific competencies (d=0.8) and eco-friendly behaviors (d=1.54, Zuñiga y Fuentes 2013). ecological literacy is to create an ecologically literate society where the world’s youth are empowered to take an active role in conservation. EPI’s mission is to improve and inspire science education and conservation efforts worldwide through field-based student-scientist partnerships.

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