Measuring the Effectiveness of an International Sea Turtle Internship Program in Developing Future Leaders

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Background:
Overview of The Science Exchange

“Our mission is to train the next generation to become scientifically literate, international team players through our two-month STEM research internships in Latin America and the Caribbean.”

Components:

▪ Work with sea turtle experts in the field of applied conservation
▪ Share the culture of the hosts, living simply outside of their home country
▪ Complete their own STEM research project
▪ Earn university credit
Research Goals

Interns often describe their experiences as “life-changing”

*What is the most reliable, inexpensive way to measure learning effectiveness of this program?*
Methods

1. Analyzed quantitative and qualitative short-term and long-term learning outcomes over 9 years and 51 interns

2. Compared 4 evaluation methods in a case study using a mixed-methods approach:

   Short term evaluation methods:
   - Pre and post program self-assessment surveys of skills*
   - Intern Field Journals - coded*
   - Supervisor evaluations*

   Long-term methods:
   - Mix of 3-year “where are you now?” surveys, social media or direct communication*

*Data sources as of 15 Aug 2017.
Short-term Outcomes

Intern Monica in 2009  
Akumal, Mexico

Intern Lizette in 2012  
Tortuguero, Costa Rica
Cognitive Evaluations: Self-rated $\Delta$ in Skills – pre & post

Source = Pre- and Post-program Self-assessment Surveys
Behavior Evaluation: Supervisor Observations – post

Source = Post-program Supervisor Evaluation
Impact Evaluation: What did I learn about myself?

1. “I learned to be more flexible”
2. “I learned how to persevere”
3. “I enjoy conducting field research”
4. “I can build relationships with anyone”
5. “I have already become a conservationist”

n=12

Source = Open Text in Exit & Follow-up Surveys
Impact Evaluation: How did your views of Conservation change?

1. “My commitment and passion have increased”
2. “I have become more aware of conservation issues”
3. “My eyes have been opened to other cultural views of conservation”
4. “I learned how efforts may vary by location”
5. “I pick up trash at the beach”

n=12

Source = Open Text in Exit & Follow-up Surveys
Impact Evaluation:
Field Journal Analysis

- Research Skills: 16%
- Soft Skills: 45%
- Conservation: 20%
- Water: 8%
- Emotion: 11%

n=1549 excerpts from 9 journals

Source = Participant Field Journals
Long-term Outcomes

Monica in 2016

Lizette in 2016
Long-term Impact: Where are they now?
(2008 – Aug 2017)

Graduate School in STEM: 41%
Working in STEM: 65%
Leader in STEM*: 84%

n=39  n=43  n=44

Source: Direct communication, 3 year survey, or social media

*Science, Technology, Engineering, Math (STEM)

Active in Conservation: 85% (n=39)
International Experiences: 76% (n=29)

Source: Direct communication, 3 year survey, or social media
Case Study: Comparison of 4 Methods

Research Skills

super post research skills/5  Self post research skills/10  Journal Research Skills/skills

= career in STEM
Case Study: Comparison of 4 Methods
Soft Skills

= either active in conservation, international experiences, or both
## Discussion

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<tr>
<th>Learning Objectives</th>
<th>Recommendations</th>
<th>Timing</th>
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<tr>
<td><strong>Cognitive</strong></td>
<td>Knowledge assessment <strong>OR</strong> Continue self-assessments of change in knowledge</td>
<td>Pre &amp; Post-program</td>
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<tr>
<td><strong>Behavior</strong> incl. Leadership</td>
<td>Continue Supervisor evaluations Online leadership assessment, incl. feedback from others Online cultural assessments</td>
<td>Post-program</td>
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<tr>
<td><strong>Impact incl. Conservation</strong></td>
<td>Open text via journals or post surveys</td>
<td>Post-program</td>
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<tr>
<td><strong>Impact Long-Term Career choices volunteer activities</strong></td>
<td>Social media search or Qualified 3-party interviews</td>
<td>Annually</td>
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References


Nichols, W.J. (2014). Blue mind: The surprising science that shows how being near, in, on, or under water can make you happier, healthier, more connected and better at what you do. New York, NY: Little, Brown & Company.

Thank you!!
Gracias!
Doumo Arigatou
どうもありがとう

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