



Evaluating a Constructivist and Culturally Responsive Approach to Environmental Education for Diverse Audiences

Stern, M.J., Powell, R.B., and Ardoin, N.M. (2011). Evaluating a Constructivist and Culturally Responsive Approach to Environmental Education for Diverse Audiences. *Journal of Environmental Education* 42(2), 109-122.

Contact:

Marc J. Stern, Virginia Tech, mjstern@vt.edu

Keith Williams, NorthBay Adventure Center, kwilliams@northbayadventure.com

Program Profile	
Program Description:	<p>The NorthBay Adventure Center, located on 97 acres in northeastern Maryland and situated on the Chesapeake Bay, offers five-day residential programs for urban, suburban, and rural middle school students in Maryland through a combination of environmental education, adventure activities, and character development.</p> <p>This programming takes a constructivist approach by combining on-site experiential learning with students' social and environmental challenges at home. For example, the environmental education lessons, primarily taught in the deciduous forests and wetlands surrounding NorthBay, are linked directly to life lessons pertaining to students' lives at home. The evening program, consisting of multi-media and live performances, continues this emphasis on character development while also drawing analogies between the environmental topics learned during the day and students' challenges at home. For example, the program connects the environmental lesson of wetlands acting as ecological filters to how positive role models can also act as filters for harmful influences in the lives of students.</p>
Program Goals:	<p>NorthBay has the goal of improving students' attitudes and behaviors in regards to environmental responsibility, character development and leadership, and attitudes toward school. Their mission statement is: "<i>Challenge middle school students to realize that their attitudes and actions have a lasting impact on their future, their environment, and the people around them by using approved Maryland Department of Education curriculum and the outdoors as an integrating context.</i>"</p>
Program Funding:	<p>NorthBay operates under the Erickson Foundation as a non-profit 501(c)(3) public charity (www.northbayadventure.com)</p>
Program Links:	<p>http://northbayadventure.com/</p>
Evaluation Profile	
Evaluation Goals & Questions:	<p>This evaluation focuses on the program's impact on urban and non-urban middle school students in the areas of environmental responsibility, character development and leadership, and attitudes toward school.</p> <p>Specifically, the <i>environmental responsibility index</i> is composed of six items that reflect NorthBay's goal of students acquiring a sense of environmental responsibility and community respect. The <i>character development and leadership index</i> is made up of seven items reflecting two goals of the program—to empower students to realize they can make positive choices for their future, and to encourage leadership skills in students. The <i>attitudes toward school index</i> is made up of seven items reflecting two goals—improved academic performance among students and a healthier and more empowered culture in participant schools.</p>
Evaluation Methods:	<p><i>Data Collection:</i> NorthBay staff gave pre- and post-experience surveys to all students during three non-consecutive sampling weeks in both the 2006-2007 and 2007-2008 school years. The weeks were chosen in order to obtain a diverse range of students from rural and urban schools. Pre-</p>

	<p>experience surveys were given to students as they arrived at NorthBay. Post-experience surveys were given during their last meal at NorthBay. Follow-up surveys were administered in students’ classrooms three months after their trip. The researchers tested for sampling bias due to a lower response rate in the 2007-2008 follow-up survey, but found no differences between the two samples.</p> <p><i>Questionnaire Design:</i> A participatory process with NorthBay staff helped the researchers design the evaluation system, which followed the steps of the Sustainable Evaluation Framework. After interviewing and holding strategic planning workshops with NorthBay staff to determine the goals of their program, survey items were developed to reflect those goals. The survey instruments were then developed and pilot-tested with 265 students from five schools during 2005. The survey was refined using exploratory factor analysis and cognitive testing.</p> <p>Confirmatory factor analysis (CFA) was conducted to confirm that the survey items, which reflected the main outcome goals of the program, statistically represented the constructs. From the CFA, three indices reflecting participant outcomes were developed. Survey items were measured on a five-point scale, with four question types.</p> <p>As mentioned above, the <i>environmental responsibility index</i> is composed of six items that reflect NorthBay’s goal of students acquiring a sense of environmental responsibility and community respect. Examples of these items are:</p> <ul style="list-style-type: none"> • <i>My actions impact the health of the environment.</i> • <i>I have the power to help protect the environment.</i> <p>The <i>character development and leadership index</i> is made up of seven items reflecting two goals of the program—to empower students to realize they can make positive choices for their future, and to encourage leadership skills. Examples of these items are:</p> <ul style="list-style-type: none"> • <i>The choices I make today can change my entire life.</i> • <i>I have people who support me when I need help.</i> <p>The <i>attitudes toward school index</i> is made up of seven items reflecting two goals—improved academic performance among students and a healthier and more empowered culture in participant schools. Examples of these items are:</p> <ul style="list-style-type: none"> • <i>Going to school is a waste of time for me.</i> • <i>I enjoy school.</i> <p>Lastly, the researchers asked about students’ overall level of satisfaction with the NorthBay program and their perception of the program’s impact on their own lives.</p>
<p>Evaluation Cost:</p>	<p><i>Evaluator preferred not to share this information.</i></p>
<p>Evaluation Insights:</p>	<p>What worked well? According to Marc Stern, one of the program’s evaluators, it was very helpful to start out with a day and a half of strategic planning with NorthBay’s staff before even getting into the details of the evaluation. This participatory approach helped to ensure that the staff was invested in the process and in the results, so that they understood the need to administer and collect the surveys, enter data, etc., and so that results would actually be incorporated into improving the program.</p> <p>What were important evaluation “lessons learned”? Stern notes that something they learned from previous evaluations was that they needed to be aware of turnover in staff, and therefore the evaluators were careful to institutionalize the components needed to be completed by NorthBay staff—they had one person solely in charge of these tasks, (such as entering data from the surveys,) and then when that person left, they were sure to have the first person train the next.</p> <p>What could have been done differently? Stern recounts how they have made minor changes over time with the evaluation, and would like to add a qualitative research piece to it to get at the “why,” especially concerning differential impact on urban vs. non-urban students.</p>

	<p>2011-2012 is NorthBay's sixth year of evaluation, not including the pilot, and they have continued to have Stern as an external evaluator. Williams notes that they are thinking of changing it somewhat in order to examine more specifically the different effects on urban vs. rural students and the effects of different components of the program on students, such as the daytime lessons and NorthBay live evening show.</p> <p>Williams also mentioned that they have a lot of qualitative data, such as photocopied pages of students' journals from NorthBay, teacher interviews, and discussions with teachers and staff at the end of the week. They are interested in evaluating this data, but it requires more labor than they are currently able to invest in.</p>
Profile information provided by:	<p>Marc Stern, Virginia Tech Keith Williams, NorthBay Adventure Center</p>
Profile prepared by:	<p>Meghan Kelly, Graduate Student, University of Michigan</p>
Posted on:	<p>November 8th, 2012</p>