



## Effects of Outdoor Education Programs for Children in California

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Program Profile	
<b>Program Description:</b>	<p>Three resident outdoor science schools were selected as target programs to implement the evaluation as called for by California Assembly Bill 1330 (2003). The bill called for the establishment of an “Outdoor Environmental Education Program administered by the CA State Department of Education. The bill also required an evaluation, conducted by an independent evaluator, of outdoor schools in California that served underserved demographic groups. The evaluation was to measure “behavioral and scholastic benefits of outdoor environmental education among under-served populations.” The schools are located in rural areas near Fresno, Los Angeles, and San Diego. The programs primarily serve fifth and sixth grade students during week-long residential programs. Many of the students served are classified as “at-risk youth” and English Language Learners. The curricula the programs use are aligned with the California State Science Framework and the California Academic Science Content Standards. The sites are also COSA certified (California Outdoor School Administrators). While the activities vary across outdoor schools in California, they focus primarily on ecology and Earth science, while employing hands-on and inquiry based curriculum.</p> <p>This evaluation review focuses on the site near Fresno, which is the Clemmie Gill School of Science and Conservation (SCICON): <i>“SCICON is the Outdoor School of Science and Conservation operated by Tulare County Office of Education. SCICON is located eight miles above Springville in the foothills of eastern Tulare County at an elevation between 2000 and 3500 feet above sea level. Within this 1100-acre campus are many miles of hiking trails, a museum of natural history, planetarium, observatory, raptor center and amphitheater for evening activities. Twenty cabins adorn the campus as housing for students, teachers and staff. Meals take place in the spacious John Muir Lodge. An instructional staff of over 20 individuals will introduce your child to the beauty of nature and the importance of caring for and conserving our natural resources. The majority of the instruction takes place “on the trail” as students study animal and plant life, geology, astronomy, Native American and pioneer history, as well as the interdependence of all living things. Learning is firsthand and experiential as students use dip nets to search for aquatic insects in the stream, visit the quartz mine to search for quartz crystals or view the heavens through the large SCICON telescope. The SCICON curriculum is an important part of your child's education supplementing the curriculum of the California State Department of Education. Your child is not taking a week off from school; rather his or her classroom is just being expanded to the 1100-acre outdoor classroom at SCICON. Mixed in with this environmental education curriculum are many important social and experiential activities. Night hikes, campfire programs, hiking the Sky Trail and skit night are just some of the many activities which make SCICON an unforgettable experience.”</i></p>
<b>Program Goals:</b>	<ul style="list-style-type: none"> <li>• Students will experience nature first hand.</li> </ul>

	<ul style="list-style-type: none"> <li>• Students will learn science and ecological concepts through hands-on activities</li> <li>• Students will participate in a positive social experience</li> <li>• Students will be challenged in wise use of natural resources</li> </ul>
<b>Program Funding:</b>	Multifaceted: The bulk of funding (60-70%) comes from fees paid by participating school districts. The County subsidizes remaining costs during school year trips. Funding for meals comes from the Federal Nutrition Program. Additional funds come from summer and weekend group use of facilities.
<b>Program Links:</b>	<a href="http://www.tcoe.org/scicon">http://www.tcoe.org/scicon</a>
<b>Evaluation Profile</b>	
<b>Evaluation Goals &amp; Questions:</b>	<p>Evaluation goal: As called for by California Assembly Bill 1330, the American Institutes for Research conducted the evaluation “to examine the effects of outdoor education experiences on students’ behavior and learning and in particular to measure those effects on at-risk and underrepresented youth.</p> <p>Research Questions:</p> <ul style="list-style-type: none"> <li>• How does participation in outdoor education programs impact students’ personal and social skills (e.g., self-esteem, cooperation, teamwork)?</li> <li>• How does participation in outdoor education programs foster students’ stewardship of the environment and their appreciation of the importance of the wise use of natural resources?</li> <li>• How does the science instruction received through the outdoor education program curriculum increase students’ knowledge and understanding of science concepts?</li> </ul>
<b>Evaluation Methods:</b>	<p>A logic model was constructed based on existing research, discussions with key advisors from the California Department of Education, and program administrators and teaching staff from the participating outdoor education programs. The logic model included expected initial, intermediate, and long-term effects based on the inputs, activities/strategies, and outputs of the programs.</p> <p><i>“The research questions, performance indicators, and measurement methods were based on the hypothesized relationships shown in the logic model. The study focused primarily on the expected impacts of outdoor education programs on student’s social-emotional skills, and environmentally responsible behaviors. Furthermore, the study examined the impacts on students’ knowledge and understanding of the science concepts that comprise the outdoor education program curriculum.”</i></p> <p>The study relied on surveys (student, parent and teacher), and site visits for data collection. The particular characteristics of the schools served by the outdoor education programs were also recorded.</p>
<b>Evaluation Instruments:</b>	A complete set of evaluation instruments is available in the report.
<b>How were results used?</b>	<p>From the perspective of Rick Mitchell, SCICON Director, this particular evaluation has served to “confirm the value of the SCICON program” and it has been a part of the current efforts to provide more assessment and evaluation of the program. Currently, SCICON has begun to incorporate more quantitative data in its pre and post assessments. This is in addition to the surveys the program uses to gauge how it is meeting its objectives, as well as keeping “track of the numbers” (students served, ethnicities, etc).</p> <p>According to Gabriele Fain of the American Institutes for Research, follow up or assessing how the study findings were used was not part of the evaluation contract. The American Institutes for Research was contracted to provide an objective assessment based on a study that was fairly rigorous in design. However, Ms. Fain suggested that the Sierra Club used the study as a public awareness tool to bolster support for outdoor education. The study was disseminated through press releases and Ms. Fain notes that the study has received and continues to receive significant attention.</p>

<b>Evaluation Cost:</b>	<p>The evaluation cost approximately \$150,000. The evaluation was contracted by the California Department of Education, which received the funds from the Sierra Club to implement the study. The Sierra Club also provided funds of \$10,000 each for 3-4 schools to participate in the setting up of the delayed treatment model, meaning that some classes had to delay their participation in the outdoor programs so as to ensure random assignment and the inclusion of control groups. The funds for those 3-4 schools were used towards the outdoor program bill for those schools. The funds were used as incentives because schools had to change their schedules to meet the needs of the evaluation design.</p>
<b>Evaluation Insights:</b>	<p><b>What worked well?</b>  Conducting random assignments within the school system is difficult but possible. It worked because of the short time of the study and much preparation time went into building relationships with teachers and principals. The schools handled much of the logistics associated with administering the surveys but the intervention was not a school-based one, it was off-site at the outdoor school. However, because the study focused on the effects on students, the schools and the evaluators; relationship with the schools was crucial.</p> <p>The teacher survey was very successful with a high response rate. This success was achieved by being mindful of other demands placed on teachers and designing a simple one page survey. Much work was put into the design of that survey to ensure that it would not pose a large burden on teachers.</p> <p><b>What could have been done differently?</b>  The parent surveys were not as successful as the teacher surveys, which was disappointing because the evaluator felt it was important to note how behaviors may have changed at home as a result of the outdoor program. The evaluator would have liked to have had other ways of receiving parent feedback, for example by talking with them in person or over the phone.</p>
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