

**Rubrics Cubed: E<sup>3</sup>**  
**(Evaluating Environmental Education)**  
**What One Grant Maker Looks for in EE Projects**



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The Ohio Environmental Education Fund (OEEF) awards roughly \$1 million annually in grants for environmental education projects targeting three audiences: pre-school through university students and teachers, the general public, and the regulated community. Funding comes from a portion of the civil penalties that Ohio EPA collects for violations of Ohio's air and water pollution control laws. Grant applications are considered through a peer-reviewed process that has evolved considerably over the Fund's 17-year history, and incorporates Ohio EPA's current funding priorities.

In 1994, the OEEF approached the Environmental Education Council of Ohio (EECO) for help in evaluating completed K-12 grant projects, after the final reports have been submitted by the grantees. The OEEF wanted to acknowledge the grantees' excellent work, and showcase outstanding projects as examples of effective environmental education for other educators and grant applicants to consider.

EECO convened a team of leading Ohio educators,<sup>1</sup> who reviewed the existing literature for criteria for excellent environmental education, including the California Department of Education's evaluation of environmental education print materials, and "the NAAEE Standards Project, Working Papers on the Development of Environmental Education Standards" by Deborah Simmons. These criteria were modified to reflect the characteristics in the OEEF grant application guidelines. Because OEEF grant projects are quite diverse and grant products are often similar in format to portfolios, the team decided to develop a holistic instrument. They developed paragraph rubrics for three categories: curriculum development, student activity, and professional development for K-12 educators.

### **Initial review process**

The team prepared similar folders for each completed grant project to be reviewed, including a brief summary, the grantee's final report, and printed materials, photographs, videos, slideshows, or other documentation that the grantee had provided. A two-day review session was held, bringing together sixteen exemplary K-12 educators from around the state. After an initial introduction to examples of the kinds of grant projects to be evaluated, the reviewers were placed in groups of 3 or 4 by grade level to explore the rubrics. A jigsaw technique was used to build consistent group norms about the meaning of terms such as inquiry learning, interdisciplinary and thematic learning, and what was meant by learners participating in the design of the project.

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<sup>1</sup> The team included Diane Cantrell, Ohio Department of Natural Resources and OEEF board member; John Hug, Ohio Department of Education and OEEF board member; Rosanne Fortner, Ohio State University Professor of Natural Resources; Sue Leidigh, Curriculum Director, Wayne County Schools; Kelly Jacobs, teacher on loan to the Science and Mathematics Network; and Pat Barron, Science and Mathematics Network.

Reviewer groups used consensus to decide which rubric level best described the project. Reviewers were reminded not to compare projects to one another but instead to a set standard – the rubric – and not to make assumptions about what “might” have happened. Their job was to review the project based solely on the documentation.<sup>2</sup> Projects that received a rubric score of 3, 4, or 5 (the highest) were reviewed a second time by a new reviewer group the next day.

All projects that had received a rubric score of 4 or 5 from one of the reviewer groups were then displayed together with the reviewer scores and comments for the entire group to consider. Individual reviewers then used colored dots to “vote” for the projects they considered outstanding. Afterward, the grade band reviewer groups reviewed the votes and decided together which projects should be selected as OEEF Outstanding Projects.

The OEEF and EECO have continued to review completed K-12 grant projects every few years since 1994. At the outset of the process, the review team examines the rubrics to determine whether changes are needed. A few minor wording changes have been incorporated to the original K-12 rubrics for K-12 curriculum, student activity and professional development. These are now posted on the OEEF web page, [http://www.epa.state.oh.us/oeeef/about\\_oeeef.html](http://www.epa.state.oh.us/oeeef/about_oeeef.html)

### **Evaluation of adult education projects**

In 1999, the OEEF asked the Environmental Education Council of Ohio to develop a similar process and set of instruments for selecting outstanding grant projects that targeted the general public audience. The variety of these projects is even greater than that found in the K-12 projects. Examples of OEEF-funded projects for adult learners include mercury thermometer exchanges, volunteer stream monitoring efforts, radio programs, tours, and all manner of printed materials.

The planning team sought assistance from The Ohio Alliance for the Environment, a group that has long promoted balanced discussion of controversial environmental issues in the state.<sup>3</sup> The team searched nationwide for environmental education studies, journal articles and other

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<sup>2</sup> The initial rubric development and review are described in more detail in Pat Barron, Kelly Jacobs and Diane Cantrell, “Using Rubrics to Review Environmental Education Projects,” in *Gaining New Insights – Building On Experience: Selected Papers from the 24<sup>th</sup> Annual Conference of the North American Association for Environmental Education*, Portland, ME, 1995.

<sup>3</sup> The adult education review team included Irene Probasco, Ohio Alliance for the Environment; Deborah Harris, National Technical Association; Bruce Cornett, Greene Environmental Coalition; Dr. Diane Cantrell, OSU Extension and Ohio Department of Natural Resources; Judy Mentzer and Carolyn Watkins, Ohio EPA; and Pat Barron, Science and Mathematics Network, with advice at key points in the process from Dr. Cheryl Dunn, University of Cincinnati and Dr. Charles McClaugherty, Mount Union College.

resources that outlined specific criteria for exemplary adult environmental education, and incorporated the OEEF's preferred characteristics for adult learning and projects targeting a general public audience. By this time, the NAAEE *Guidelines for Excellence* series was available, as well as Ohio's Best Practices Guidelines.<sup>4</sup>

The review team again opted for a holistic approach, and developed five-level paragraph rubrics for four major types of projects: seminar/class/workshop; print product; media product; and public awareness campaign, for grant projects that incorporated multiple approaches and products. All the groups participating on the planning team helped recruit reviewers to represent as broad a cross-section of the general public as possible. The two-day review process is similar to that used for K-12 projects, with small groups of reviewers assigning a consensus level score to each project. Those scoring at rubric levels 3, 4, or 5 are reviewed a second time by a different group. All projects that received a 4 or 5 are then displayed for the entire group of reviewers to consider and cast dot votes for. Approximately 20-25% of the reviewed grants are ultimately selected as OEEF Outstanding Projects for the General Public Audience.

### **Evaluating Web sites**

Changes in technology are reflected in changing grant products, with fewer videos and more Web-based materials. Because many projects now include Websites, the review team in 2002 also collected a number of publicly available tools for evaluating Web sites. These were found to be better suited to that technology than a paragraph rubric, and a composite version has now been posted on the OEEF Web page and added to the toolbox used by OEEF evaluators.

### **Evaluation of the Review Process**

These instruments have now been used to review more than 500 completed grant projects. By the end of 2006, 93 OEEF Outstanding Projects have been selected. Reviews are conducted approximately every two years. At the conclusion of the second day, each set of reviewers is asked to complete an evaluation of the review process. Generally, reviewers felt that the process was well-organized, a positive experience, and an important component of the grant-making process. Concerning the effectiveness of the holistic method for reviewing, almost all reviewers responded positively, characterizing the process as "effective" or "very effective" with the wide variety of projects to review. The strengths of the process noted by the

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<sup>4</sup> Diane Cantrell, Michael Conner, Bruce Evener, Diana Hunn, Joyce Meredith and Paul Spector, *Best Practices for Environmental Education: Guidelines for Success*, 2000, a project of Ohio EE 2000: A Strategic Plan for Environmental Education in Ohio, available online at <http://www.eeco-online.org/publications/publications.html>

reviewers varied, but the diversity of the review group and the opportunity to review in teams were prominently noted. Suggestions for changes were varied, and some have been incorporated into the process over time and will be discussed in the next section. When asked what they had learned, reviewers were very positive in their responses, especially noting increased understanding about what constitutes an excellent project. Discussion with OEEF staff and the review planning team also indicate a high overall degree of satisfaction with the process.

## **Lessons Learned**

Some projects could not be reviewed because the grantee simply did not provide sufficient documentation. Other projects that were reviewed might have deserved the Outstanding Project designation but could not receive it for the same reason. OEEF now provides more information about the eventual review to new grant recipients, and is posting the rubrics and award winners online, in an effort to encourage better documentation.

The background information and shared discussions at the beginning of the two-day session are essential for reviewers to understand the review process and become familiar with the projects. This ensures that the reviewers all approach the process from a common grounding, and is even more crucial for the general public/adult education project review, as those reviewers often have less experience in project evaluation than the formal educators who perform the review of K-12 projects. Over time, more reviewers from county and state environmental and conservation agencies (ODNR, soil and water conservation districts, recycling offices, health departments, etc.) have been included to provide an important perspective, since these agencies are the recipients of many grants.

OEEF eliminates budget information from the review as much as possible. This review process focuses on the outcomes and products that were produced as a part of the grant project. The reviewers are given the dollar amount of the grant so they can make an evaluation of the cost-effectiveness of the project. To include detailed budgets and expenditures might cause the reviewers to deviate from their main purpose of identifying Outstanding Projects, and embark on a micro-discussion of how appropriately the funds were expended. All grant expenditures are approved by OEEF staff, so these discussions would not be pertinent.

It is important that the same group of reviewers participate in the two consecutive days of the process, to provide more time to establish a shared understanding of the instruments, and reach consensus on different interpretations of wording in the instruments. While some reviewers would have liked more time, this had to be balanced with considerations of their availability as a group.

The review team was concerned that mini grant projects (those receiving grants of \$5,000 or less) might not be able to compete with the larger grant projects. This has not been the case, as 27 of the 93 selected Outstanding Projects are mini grants.

Overall, the paragraph rubrics have been useful to provide a balance between structure and holistic review. The rubrics serve as a guide that focuses group discussion and sets standards by which to compare the projects. OEEF expects to continue to modify the instruments and evaluation process over time, as grant projects change. The instruments and examples of selected projects are posted on the OEEF's Web page at [http://www.epa.state.oh.us/oef/oef\\_featured\\_ee\\_projects.html](http://www.epa.state.oh.us/oef/oef_featured_ee_projects.html)