

## THE DLESE EVALUATION TOOLKIT PROJECT

Susan M. Buhr\*

Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder

Lecia J. Barker

Alliance for Learning Technology and Society, University of Colorado, Boulder

Mary Marlino, and Jennifer Mangan

DLESE Program Center, University Corporation for Atmospheric Research, Boulder, Colorado

### 1. INTRODUCTION

*"The key opportunity is to mobilize the educators and developers in the DLESE community to contribute to the evaluation knowledge base...The goal is not to create a set of stories about what I did in "my classroom", but rather to empower educators with key questions, common tools and a venue for sharing results." DLESE Evaluation Plan, 11/2000.*

The Digital Library for Earth System Education (DLESE) seeks to improve the quantity, quality and efficiency of Earth System education through the community-based distribution of high quality educational resources. One means of promoting this mission is to provide tools that enable sound evaluation of geoscience education resources and projects as they are being developed and implemented. The DLESE Evaluation Toolkit is a developing Earth systems education evaluation resource that is grounded in the needs of Earth system educators, and that will provide a virtual home for a geoscience education evaluation community.

The goals of the project are to:

- provide a robust collection of evaluation resources useful for Earth systems educators;
- establish a forum and community for evaluation dialogue within DLESE, and;
- disseminate the resources through the DLESE infrastructure and through professional society workshops and proceedings.

The target audiences for the Evaluation Toolkit site include:

- Principal investigators and project managers with geoscience education projects to administer;
- K-12 teachers with outdoor learning center or service learning projects in need of support;
- Professional evaluators searching for geoscience education evaluation tools and instruments, and;
- Out of field evaluators-those who conduct evaluation but who have not been formally trained.

In geoscience education, as in most endeavors, improvements are made by asking questions and acting upon information about successes and failures; project evaluation can be thought of as the systematic process of using social science methods to ask these questions

\* *Corresponding Author Address:* Susan Buhr, CIRES, University of Colorado, Boulder, 80309-0216 (303)492-5657 email: susan.buhr@colorado.edu

and gather useful information. The Evaluation Toolkit seeks to help principal investigators, teachers, and evaluators use the evaluation process to improve our projects and our field.

Our main efforts to date have been devoted to the first goal of developing the initial collection, while making progress on the other two goals. To this end, we have built and populated a beta web site for geoscience evaluation, garnered initial community feedback from the DLESE and broader community, and begun to engage the geoscience education community in the awareness and practice of geoscience education evaluation.

### 2. THE EVALUATION TOOLKIT

The initial Evaluation Toolkit collection contains features that allow users to access professional development about evaluation, search and find evaluation resources, submit resources, find or offer evaluation services, register for upcoming workshops, take the user survey, and submit calendar items (<http://beta1.dpc.ucar.edu/evaltoolkit/>). It has been refined and revamped once in response to feedback from the advisory board, which is comprised of members from each of the target audiences.

The evaluation resource matrix currently contains seventy-six resources that have met our initial first-cut review. Many of the useful resources are concerned with general evaluation or with science education evaluation as these are readily available in digital format; we are currently seeking more geoscience education specific resources as the geoscience education community becomes more engaged in the project.

The resources are currently categorized by major type; they will become searchable on multiple dimensions of project type, audience, objectives and evaluation resource type as

DLESE efforts to develop collection-specific search engines mature. This search capability will help users find what they need quickly just as in the larger broad DLESE collection.

The professional development feature is in progress, and will take users through the process of evaluation planning in a series of templates. Novice evaluators are able to submit their resulting plans for comment.

## 2.1 Peer review of resources

The peer review criteria and process for ensuring that the site contains robust and useful resources has been drafted and received initial feedback from the advisory board. The draft criteria are based upon DLESE peer review criteria, the MERLOT digital library peer review criteria, digital resource evaluation criteria, and evaluation best practices. The proposed review process has also been modeled upon the DLESE draft review process, and will necessarily include a combination of expert (educator, evaluator, geoscientist) and user review.

The peer review criteria will be used to assess potential resources in terms of evaluation validity, relevance to geoscience education, ease of use, and technological issues. Other criteria considered to be valuable are that the resource be low-cost or free, accessible to diverse audiences (including under-represented groups and those with physical disabilities), or available in languages other than English.

## 2.2 Engaging the Community

The success of the Evaluation Toolkit project is tied to our ability to engage the DLESE and broader geoscience education community in our efforts. To this end evaluation workshops are being conducted at professional society meetings, awareness is being built through special sessions and presentations, and an on-going understanding of community needs is being sought through user surveys.

Several workshops have been conducted and are planned; including one given at the 2002 Fall American Geophysical Union meeting, and one to be given at the 2003 National Science Teachers Association Annual meeting. The goals of the workshops are to give personal assistance to users who want to learn more about evaluation and the resources within the Evaluation Toolkit, and to use these face-to-face meetings as the genesis of the virtual DLESE evaluation community. More workshops for professional society meetings and a culminating intensive workshop are planned as part of this project.

Special sessions on geoscience education evaluation have been organized during American Geophysical Union meetings as another means of engaging the community and raising awareness about the utility and methods of project evaluation. The Evaluation Toolkit project was well-received at the DLESE Annual Meeting, where project evaluation was included as an issue of importance to the entire community. A most welcome response was *"I did always see evaluation as a chore, but you really made me think it is worthwhile and doable"* [DLESE Annual Meeting participant].

## 3. FUTURE PLANS AND CONCLUSION

While we have made progress on this project, much more work remains to be done. As the community becomes more engaged in the project, the resources will reflect the community interests. In the near term, more contributions from geoscience educators will be sought, and a vibrant discussion about evaluation must be sparked among those who have already expressed interest. Our workshops and special sessions are a forum for those who are most interested in evaluation, and we anticipate those who attend will be the core of the new DLESE dialogue.

A tenet of the project is that expertise in education, geoscience and evaluation are all necessary for our field to conduct the best possible geoscience education. We have found that each segment of the community has its' own understanding of best practices and concerns about working together. The Evaluation Toolkit project seeks to bring these community members together with a common language and common goal to form a fruitful new partnership.