



Evaluation in Environmental Education: Setting a Higher Standard

By Richard E. Osorio, Georgia Project for Excellence in Environmental Education, College of Environment and Design, University of Georgia

Not everything that can be counted counts, and not everything that counts can be counted. — Albert Einstein

Hurricanes, such as Katrina and Rita, have demonstrated for all the world to see, the significant challenges inherent in planning and implementing effective and efficient evacuation and relief efforts. I can only begin to imagine the enormity of coordinating and facilitating an emergency management plan that depends heavily on extensive cooperation, support, and communication among a diversity of local, state, and federal agencies.

There are lessons here, albeit on a much smaller scale, for environmental educators. Meaningful and effective program planning, implementation, and evaluation in environmental

education (EE) also rely on effective and efficient cooperation, support, and communication among our stakeholders. How do we know if we are being as effective and efficient as we could be, particularly when each of us involved in program planning brings such a diversity of knowledge and skill sets to our respective work settings?

To arrive at an answer, I believe we

have to focus our attention on how we think about and practice evaluation strategies. Evaluation, both formative and summative, is key to our understanding the difference between doing things right and doing the right thing.



What does this mean? To me, it represents the ability and opportunity to ask the hard questions prior to and throughout the program

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planning process in order to probe deeper into determining (1) if you are operating in a supportive environment from which a high quality evaluation is forged; (2) how your results will be valued and used; and (3) given a possible sense of unease about evaluation, how to consider improving your comfort level and expertise.

1. What are the realities of our working environment?

Hurricanes and tropical storms are historically common and expected along the Gulf Coast. People and habitats prone to the ravages of nature in this region are all too familiar with the consequences of excessive wind and rain. Yet, despite these hazards as well as a number of economic and social circumstances, individuals continue to live and work in these affected areas.

In EE we are also subject to a set of constraints that, in many ways, make us extremely vulnerable to externalities beyond our control. This is simply a fact of life. The question you have to ask, however, is whether these factors unduly influence the integrity of the evaluation process. Designing a viable evaluation instrument, whether qualitative, quantitative, or mixed-use, is not an exercise to be taken lightly. As such, you should consider and weigh the current level of support you receive for the development of high quality evaluations for your programs, projects, and events. If you determine that more support could be provided in the area of evaluation, address this concern with your supervisor to discuss and explore options for improvement.

2. Once you have results, then what happens?

Although it seems fairly straightforward, there ought to be at least one reason that makes it very clear to you during program planning as to why you are designing an evaluation instrument, collecting and analyzing data, and then submitting a report of your findings. In other words,

an evaluation should seek to find an answer (or several) to something your organization doesn't know. This 'gap in knowledge' should lessen as a product of your efforts.

Sadly however, this isn't always the case. Some educators may be left scratching their heads as to why they even bothered doing an evaluation if the information gleaned from the process was not valued. Therefore, whether you're a novice of just three days on the job or you're soon to retire, I strongly encourage every educator to step up and ask the obvious, "For what purposes, if any, am I doing this? When and how will the results be used? Who is being held accountable to make certain that it does?"

Never assume the answers to the above questions.

3. Where can I go to increase my knowledge and skills in evaluation?

Saying we need to be better informed and proactive about evaluation is the easy part. It's true that many of us do not come into the EE field with a great deal of expertise in evaluation. Despite this gap, it is clear that we as EE practitioners cannot lapse into ignorance, mediocrity, or fault a lack of time to be better versed in the subject matter. We simply must do a better job in program evaluation if we are to confidently and competently stand before our peers, constituents, and

stakeholders and demonstrate that EE is a valid and useful endeavor that brings about desired change for the field and for those we strive to serve.

Thankfully, we are not without resources in evaluation. Colleges and universities are incredible places to start. Working with faculty and staff, especially if they have an interest in education, can provide you with great advisors or mentors in expanding your horizon in evaluation. I am aware that, like us, personnel at colleges and universities also have significant

responsibilities that may limit their level of involvement; however, scheduling an appointment can be the beginning of building a great professional relationship with the higher education community as well as an opportunity for exploring mutually beneficial partnerships.

Secondly, there is always the ever-present Web. A Google search with the phrase 'Program Evaluation' will yield nearly two million hits. As a starting point, a resource from Penn State serves as a nice primer for those just getting started: (<http://www.extension.psu.edu/evaluation/>).

Thirdly, there are a number of texts that address program evaluation. I recommend, in terms of seeking material, that you first consider visiting

A Very Brief Program Evaluation Overview

Program evaluation:

- Allows you to support what you may already intuitively know about your program.
- Measures your program's impact: helps to tell what works, what doesn't work, and what may need improving.
- Helps with setting program goals, communicating progress to funders, and other stakeholders.

The two main types of program evaluation:

- **Process** evaluation addresses the daily, operational functions of a program and helps identify program "trouble spots." Addresses the question: Is our program doing what it says it's doing?
- **Outcome** evaluation measures overall program effectiveness and progress towards program goals. Addresses the question: Are the people our program serves different because of exposure to our program?

Program Evaluation Pitfalls to Avoid

“Evaluation ought to be an integral part of any good program. We should be constantly thinking about what we are doing, rather than seeing evaluation as an add-on.” — Dr. Cynthia Sipe

1. Don't balk at evaluation because it seems far too "scientific," you feel you don't have time, or it sounds difficult.
2. There is no "perfect" evaluation

3. Work hard to include some interviews in your evaluation methods. Questionnaires don't capture "the story," and the story is usually the most powerful depiction of the benefits of your

4. Don't interview just the successes. You'll learn a great deal about the program by understanding its shortcomings too.
5. Don't throw away evaluation results once a report has been generated. Results can provide important information later when you're trying to understand or make changes to your program.

Environmental Education Alliance of Georgia + College Folks = Success!

By Theodosia Wade, Oxford College of Emory University

Are you interested in:

- getting to know other college and university faculty, staff, and students who are working with environmental education (EE) throughout the state?
- starting a college chapter of Environmental Education Alliance of Georgia (EEA) at your institution and need help getting off the ground?
- offering pre-service courses in EE in your teacher education programs, but don't know where to start?

- a summer internship to see if EE appeals to you?
- seeing what EE opportunities are available for higher education staff and faculty?

If you answered “yes” to any of these questions, keep reading because the Environmental Education Alliance of Georgia needs you!

EEA's Higher Education Committee is looking for a few good environmental education folks to join our efforts to improve EE at the college and university level. Sound interesting,

intriguing, and/or captivating? If so, please contact Chairperson Theodosia Wade at 770-784-8395 or twade@emory.edu if you are interested in joining our efforts or are just curious.

We also invite you to join us at our annual EEA conference March 17-19, 2006 where you will have an opportunity to learn more about our organization and our links to higher education around the state.

For conference information please visit www.eealliance.org.

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a library at a college/university campus and speaking to a reference librarian to assist you in finding books on program evaluation. This experience provides you with a chance to contrast and compare materials that best suit your

background and program needs prior to making a purchase. Also, reviewing texts online (e.g. Amazon, Borders, or Barnes and Noble) can also be helpful in determining the availability of desired materials and prices.

Georgia's Great Outdoor Classrooms

By Leslie Poythress, Gray Elementary School

Georgia is home to five residential environmental education programs located in the Mountain, Coastal, and Piedmont regions of the state. Starting with Rock Eagle in 1979, they are all



Rock Eagle

part of the Georgia 4-H and Youth Program under the University of Georgia Cooperative Extension



Jekyll Island

Service. Taking the honor as the nation's largest residential EE program, thousands of students benefit from the hands-on learning opportunities they provide in developing awareness, knowledge, and appreciation for the environment. Day and residential programs are available for students as well as training and resources for both formal and nonformal educators.

Piedmont Region

- **Rock Eagle Center, Eatonton**
Students explore natural resources surrounded by 1,500 acres of forest with a

110-acre lake and numerous streams teeming with life.

- **Fortson 4-H Center, Hampton**
Recently opened,

this center

focuses on the forest,

water, and wildlife resources of our state.

Coastal Region

- **Burton 4-H Center, Tybee Island**
A 6-acre site provides children with a wonderful opportunity to experience a tidal marsh.
- **Jekyll Island 4-H Center, Jekyll Island**
Participants uncover the mysteries of beach, marsh, and forest environments, as they focus on barrier island ecology. Tidelands

Nature Center is also located on Jekyll Island.

Mountain Region

- **Wahsega 4-H Center, Dahlonega**
To experience a mountain ecosystem, groups can encounter waterfalls and streams as well as the mountain and forest habitats.

Arch Smith, associate state 4-H leader, sums up the benefit of the programs,

“The students who participate in the 4-H Environmental Education Program have an opportunity to learn about our



Wahsega

natural environments in the ‘Great Outdoor Classrooms’ all across our state.”

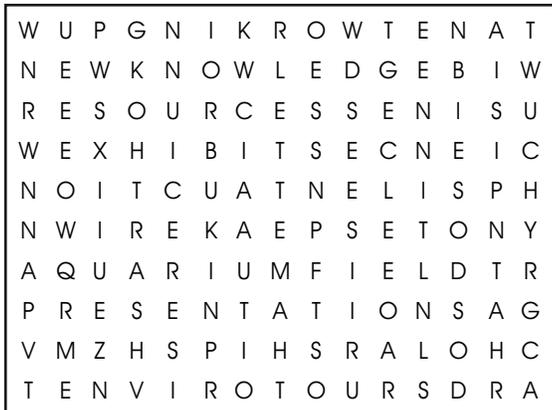
As the world around us becomes a classroom setting, all the Georgia 4-H Centers help cultivate a sense of belonging in students that facilitates them becoming better stewards of our environment. Isn't this what environmental education is all about?



Burton

2006 EEA Conference

Join us for the annual EEA conference on March 17-19, 2006 at the Simpsonwood Conference Center on the Chattahoochee River in Norcross. Visit www.eealliance.org for more information. Searching for a reason to attend? Try this wordsearch!



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New Curriculum Makes an Urban Splash

Georgia Project WET and the City of Atlanta Department of Watershed Management will release *The Urban Watershed: A Supplement to the Project WET Curriculum and Activity Guide for Teachers in Atlanta and other Metro Areas* in the 2005-06 school year. The Urban Watershed Educator's Guide features 12 engaging, real world-learning activities for 4-8th grade students on issues such as impervious surfaces, impacts on water quality, and the challenges of developing delivery systems for drinking water and wastewater. For more information on Georgia Project WET and The Urban Watershed Educator's Guide contact: Petey Giroux at (404) 675-1638 or petey_giroux@dnr.state.ga.us.

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Piped on Water Activity from The Urban Watershed

You can find supporting materials for this lesson, including background information, maps of drinking water and wastewater treatment facilities, and a rubric for assessing student understanding in the newsletter section of www.eealliance.org.

Students will:

- Build a model of the delivery system for Atlanta's drinking water and wastewater systems as it relates to their community, including separated and combined sewers, combined sewer overflow and water quality control treatment facilities, a tunnel for storage, and a water quality control treatment facility.
- Trace the water and wastewater system from the source to the users and back to the source.

Materials:

- Maps of water treatment and wastewater treatment facilities (www.eealliance.org)
- Glue, stapler, construction paper, cardboard, markers, film canisters (tunnels), straws, scotch tape, toothpicks, markers, crayons, large square piece of paper or cardboard, and paper towel holders to cut for storage tanks
- Different colored straws, so students can show the difference between drinking water pipes and wastewater pipes

Procedures:

Warm Up

Take a large piece of paper or poster board; divide it in 4 sections and draw a picture of the school in the center of the board. Ask students to think about all the homes and businesses around the school that need water. Ask the students to name 2 or 3 homes or

businesses in each quadrant of the map and draw them in and label them. Do this with each quadrant. Ask where the community will get its water. Using the Atlanta Drinking Water Service Area map and the Wastewater Treatment Service Area map found at www.eealliance.org, locate the nearest intake for drinking water treatment and the nearest wastewater treatment facility. You can draw or stretch a piece of yarn beside the poster board to indicate where the river is. Water leaves the river and is piped to the drinking water treatment facility, then to the homes, schools, and businesses



and finally goes to the wastewater treatment facility (reclamation center) and back to the river. Give students background (found at www.eealliance.org) on separate and combined sewers, and on the storage tunnels.

The Activity

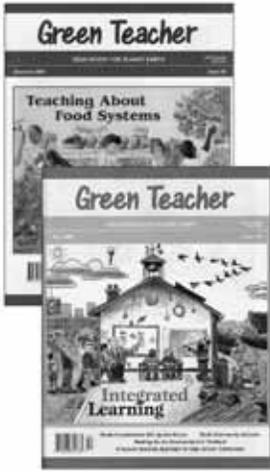
1. Divide the students into 4 teams and assign each team a community section of the quadrant. Explain to the students that together all the teams will build one large model of the community surrounding the school. Each team will be responsible for building a representative model of their area.

Two teams will build a combined pipe system and two teams will build a separated pipe system. Teams may need to go on a hike of the school campus to get their community area in mind before beginning the construction.

2. Give each team a piece of construction paper or cardboard the size of flip chart paper and give each team a section that represents a quadrant of the community. Students will need to put the school in the area it should be depending on what quadrant they have. If the team has the lower right quadrant, the school will be in the upper left corner. (Remember that the school is in the center of their community) The team will need to generally locate where the river is and where the nearest drinking water and wastewater treatment facility is in relation to their community.
3. Ask the students to think about the community in the quadrant area around their school and draw a rough draft of the buildings. Have each team construct the buildings

that were mentioned in the opening discussion. Using the materials provided, have each team build and label the buildings in their area. Students can use construction paper to create houses and businesses, etc. Ask 1-2 representatives from each team to glue or tape the buildings to the designated areas on the cardboard. There could be someone working on streets that can be divided into residential vs. commercial, etc. The area does not need to be accurate, just representative of the community.

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Since 1991, *Green Teacher* magazine has been a valuable resource for both classroom teachers and non-formal educators who want to promote environmental literacy among young people from kindergarten through high school. Written by educators, for educators, each quarterly issue brings innovative ideas, classroom-ready materials, and reviews of the latest resources. Find out why *Green Teacher* is a best-selling environmental education magazine — **use the order form below to take advantage of your membership discount: you'll receive \$2 off of a one-year subscription; \$3 off of a two-year subscription.**

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4. Have students study the map that shows the location of the wastewater treatment plant nearest their community. If they are building combined pipes they will need to add combined sewer overflows (CSOs), an underground storage tunnel, and another enhanced combined sewer overflow treatment plant. Separated pipe teams will need to build two separate pipelines. They do not need the CSO, tunnel, or the enhanced CSO treatment facility. The wastewater pipes will leave homes, schools and businesses and go straight to the wastewater treatment facility. Storm drains in the community will deliver stormwater to underground

pipes that take the stormwater to the river. Students will construct the piping of water from the river to their section of the quadrant and back to the river. Straws and toothpicks can be used to construct their pipe systems and film canisters make good storage tunnels or could be combined sewer overflow facilities. The school, river, and treatment facilities should be clearly labeled so that students can see where they are located during construction.

5. After all teams have completed their "piped" community, bring the 4 quadrant pieces back together. Appoint several volunteers to "inspect" the model community. Are all the pipes laid correctly? Are

they all connected? Do they bring water from the water treatment facility to the homes, school, and businesses and eventually connect to the wastewater treatment facility and finally to the river? Give the teams some time to work with the other teams and see if they want to connect any piping to make the community system more efficient.

6. Have your class invite other classes in to see your model community. As the assessment, have each team present their model to the visiting class and have them each explain the reasoning for their piping system. For assessments and an optional preparation activity visit www.eealliance.org.

P.O. Box 286
Mansfield, GA 30055



EEA is a self-governed, non-profit organization that promotes communication and education among professionals in the field of environmental education in Georgia. EEA is an affiliate of the North American Association for Environmental Education.

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Environmental Education Alliance of Georgia

