

Strand: EE Leadership Skills

Encouraging Industry and Agency Involvement in Environmental Education

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ABSTRACT

Environmental education (EE) can serve as a valuable tool through which industry, state and public interest groups can work together to achieve both organizational and social goals. EE leadership skills are necessary to foster the collaborative relationships needed to break down barriers, and create turf-free resources including in-service teacher workshops, informational brochures, and curriculum guides. Barriers include institutional, financial, personal bias, and other resource related constraints. The benefit of overcoming these barriers and building collaborative educational relationships is a balanced presentation of accurate, comprehensive, and scientific information. Sharing different experiences and perspectives concerning regional natural resource management issues increases the scope and effectiveness of EE programs. A case study on the Florida Institute of Phosphate Research (FIPR) provides valuable insights into the rewards and challenges associated with combining industry,

regulatory, environmental and public interests through EE program development, as well as practical solutions for encouraging collaborative efforts.

OBJECTIVES

The Florida Institute of Phosphate Research (FIPR) is an independent state agency which collaborates with the phosphate industry, regulatory agencies, environmentalists, public interest groups, and technical experts to conduct research and provide information to community members about issues related to phosphate mining, processing and reclamation. FIPR provides valuable insights into the rewards and challenges associated with combining multiple interests through EE program development, as well as practical solutions for encouraging collaborative efforts. The objectives of this paper are to:

- Demonstrate how EE can bridge the gap between industry and agency (any state or federally funded agency with authority over natural resource management issues) interests in natural resource management
- Stimulate interest in the development of practical solutions for encouraging collaborative efforts in EE program development
- Identify the rewards and challenges associated with designing EE programs that represent the views of various interest groups

BACKGROUND

The resource management issues that affect the southeastern United States are numerous and diverse. One particular issue that has generated a great deal of environmental concern in central Florida is phosphate mining and the subsequent reclamation of mined lands. Consistent with a growing national trend in public land management, interest groups have turned to alternative approaches that involve

collaboration to enhance the natural resource management decision-making process (Schuett et al. 2001) regarding this issue.

Collaboration in natural resources is defined as people working together, sharing resources and knowledge, to ensure the sustainable management of ecological systems and communities (Schuett et al. 2001). A prevalent theme in public land management is the application of ecosystem-based management (ESBM) (Slocombe 1993).

Collaborations can provide the varied perspectives that are needed to make ESBM strategies successful. The complexities and uncertainties of ESBM make it necessary for fragmented interest groups to work closely with each other in a system of adaptive management that is built around an individual ecosystem (Dewitt 1994). Constructive approaches to initiating valuable interchanges of information and perspectives between interest groups are dependent on the presence of high-quality scientific and technical knowledge, as can be provided by academic and research-based institutions. Focusing collaborative efforts on regional natural resource management issues allows interest groups to contribute to social relationships that will directly impact the resources that support their organization.

Reliable, practical, and balanced information presented in EE programs plays a crucial role in providing the general public with effective tools needed to develop environmental awareness and environmentally responsible behaviors. EE leadership skills are necessary in the development of programs that accomplish these goals. Many organizations and interest groups develop independent EE materials, and for some the quality is questionable. EE programs developed through collaborative efforts offer the advantages of increasing public visibility, decreasing financial costs, and appeasing accusations of biased interests. Collaboration between industry and agency

representatives that focuses on regional natural resource issues can lead to the development of practical solutions for both natural resource managers and EE program developers. Strategic inclusion of industry representatives is crucial in abandoning the “us versus them” mentality often used by environmental organizations to gain funding and increase membership (Milne et al. 1996).

CASE STUDY

FIPR is a research-based organization administered by a Board of Directors appointed by the governor. It includes representatives from the phosphate mining industry, the Florida Department of Environmental Protection (FDEP), environmental groups, and the state university system. FIPR provides a host of EE resources for local community members including an annual teacher workshop, curriculum guides, and a full service public library. A comprehensive website is also currently in development (<http://www.fipr.state.fl.us/information-area-public-information-milo.htm>). Collaborative efforts are key to the development of their research, information, and education programs.

The capstone of FIPR’s education program is their annual teacher workshop. The primary goal of the two-week event is to provide K-12 teachers with educational resources that focus on the scientific method and phosphate-related topics. Lesson plans and activities are correlated with the Florida Sunshine State Standards for the subject areas of math, science, language arts, and social studies. Content is consistent with the scientific information produced through FIPR’s research program. Representatives of various interest groups including the state university system, the phosphate mining industry, and the Florida Cooperative Extension Service are asked to take part in the workshop by giving guest lectures and leading formal discussions.

METHODS

Information for this project was acquired through various qualitative techniques. Interviews were conducted with FIPR's Education Coordinator, Lisa Jap-Tjong, agency representatives from FDEP, and researchers at the University of Florida. These interviews yielded valuable insights into the effectiveness of both FIPR's collaborative efforts and its resulting educational programs as perceived by various interest groups involved in the collaboration. Direct observations were obtained through personal experience working with FIPR's education team to develop research-related activities and lesson plans for their 2006 Summer teacher workshop. Various evaluative instruments were reviewed following the implementation of the workshop including attitude and knowledge surveys, daily workshop session evaluations, and open-ended reflection responses from workshop participants.

RESULTS

Review of the evaluative materials revealed that workshop participants perceived they gained a deeper understanding of the issues related to phosphate mining and reclamation. Most expressed that the educational materials and knowledge they acquired would be of great value when teaching in their respective subject areas. Participants collectively indicated that they enjoyed the workshop activities, and would be most interested in attending future seminars and workshops offered by FIPR on topics related to Florida's natural history, the scientific method, and educational resources.

DISCUSSION

EE programs developed through collaborative efforts can take many forms. In-service workshops, curriculum guides, custom programs for schools, and an educational website are currently offered through FIPR's education program. Other types of programs that

can be offered include field-based instruction, skill development, and service learning projects. It is important to note that the perspectives of all interest groups should be fully represented in any educational materials that are produced as a result of collaboration.

Interest groups whose organizational goals are being met are better able to contribute resources to furthering their social goals, particularly those that can be accomplished through the EE programs mentioned above. Collaboration in the development of EE programs can provide an array of benefits that help organizations meet both sets of goals. The organizational benefits of collaboration as determined through personal experience working with FIPR and their collaborative partners include an increase in interdepartmental interaction, expanded partnership opportunities to seek grant funding, and the sharing of institutional knowledge and information about technological advances. Social interaction among representatives of various interest groups also increased, and interest group representatives found that they were able to discuss issues in greater depth. Collaboration further served to increase the organizations' resource base and stimulate research efforts that drove effective policy development. Social benefits that were realized as a result of collaboration include an improvement in the public's understanding of environmental issues and an increase in public participation in the resource decision-making process.

As a result of collaborative efforts FIPR's educational materials provide factual and scientific information, help build environmental literacy, and increase environmental knowledge and skills. These characteristics are consistent with the guidelines for excellence in EE programs established by the North American Association for Environmental Education (NAAEE). FIPR's education department strives to develop programs that provide a balanced presentation of the perspectives held by contributing

interest groups. Providing opportunities for interest group representatives to partake in the annual workshop by presenting guest lectures and leading various workshop activities constitutes a valuable example of developing EE programs through collaborative efforts. Programs that reflect regional issues are better tailored for their participants and can thus offer greater depth of content to stimulate critical thinking and problem solving skills. EE programs developed through collaboration can also offer the benefits of increased funding and promotional opportunities.

An important characteristic of any successful EE program with the goal of fostering skill development is providing adequate knowledge to empower participants to engage in environmentally responsible behaviors. Concerning the issue of phosphate mining and reclamation, desirable behaviors might include service learning efforts to help restore phosphate mined lands or being more cautious about introducing invasive/exotic species to the region. As follows from the theory of planned behavior, perceived behavioral control is an important contributor to intention to act, a necessary component of behavior change (Ajzen 1985). Participatory problem solving, as can be fostered through participation in workshops that focus on environmental issues, can be an important motivator in the development of environmentally responsible behaviors (Kaplan 2000).

There are many barriers to the creation of successful collaborations in natural resource management. These challenges range from institutional, financial, and other resource-related constraints to lack of knowledge about collaborative opportunities. Barriers that FIPR and their collaborative partners have had to overcome include balancing the logistics of gathering together numerous interest groups, and various institutional, financial, and resource-related constraints. Other challenges that organizations should be aware of are the lack of EE professionals with the appropriate

leadership skills to facilitate collaborations, the lack of willingness to create and/or sustain long-term collaborations between industry, state and public interest groups, organizational inflexibility, and failure to ensure adequate representation of minority perspectives.

A number of characteristics can serve as indicators of successful collaborations. These characteristics include broad representation of stakeholders, well-defined goals and objectives, and the desire to build linkages beyond the community (Schuett et al. 2002). It is key that stakeholders understand the importance of trust and openness to “be able to rise above initial perceptions to learn from one another and develop creative solutions to problems” (Bauer and Randolph 1999). FIPR utilizes several collaborative strategies to promote success in their education programs. These strategies include collaborating with academia and other research-based organizations and working with EE professionals that represent various collaborative interests to enhance program development and implementation.

Avenues for disseminating information about successful collaborations at the regional level are needed to promote further collaborative efforts among industry, state and public interest groups. These avenues could include newspaper and magazine articles, company websites, and other media tools. Case studies and qualitative research that identify the key characteristics of successful collaborations could also provide a credible foundation for encouraging more industry representatives to pursue collaborative efforts with public and agency interest groups.

CONCLUSIONS

EE offers industry, state, and public interest groups the opportunity to develop beneficial collaborations through program development. Academic and research-based

organizations should be considered as potentially valuable, and in some cases necessary, participants in forming these collaborative relationships. Research organizations can provide the neutral ground needed to encourage all interested groups to discuss and develop effective and balanced EE programs by facilitating the constructive interchange of ideas and interests. Furthermore, they typically have access to a pool of resources and technical experts that can assist in the development of effective natural resource management strategies.

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