Student Perceptions of Culture and Environment in an International Context: A Case Study of Educational Camps in Costa Rica

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Abstract

Participant surveys from five camps including 100 students from the United States suggest that international environmental education can contribute positively to knowledge of the social, cultural, and economic context of conservation in the neotropics. After 10-13 days of interaction with rain forest communities in Costa Rica, students had a broader appreciation of the importance of local residents in rain forest conservation, and of discrepancies in resource use between First and Third World populations. However, student interest in changing personal behaviour to contribute to rain forest preservation did not increase during the camps. In order to facilitate concrete changes in behaviour among participants, I suggest that international environmental education must be provided in the context of a broader, action-oriented curriculum implemented by the home institution.

Résumé

Selon des sondages réalisés auprès d'étudiants de cinq camps, dont 100 étudiants américains, l'éducation internationale relative à l'environnement peut aider à mieux connaître le contexte social, culturel et économique de la conservation de l'environnement dans les régions néotropicales. Après 10 à 13 jours d'échanges avec des collectivités de la forêt pluviale, les étudiants percevaient mieux l'importance des résidents de l'endroit en matière de conservation de la forêt pluviale, ainsi que les différences d'utilisation des ressources entre les populations des pays industrialisés et du tiers-monde. L'intérêt des étudiants à changer de comportement personnel pour aider à préserver la forêt pluviale n'a toutefois pas augmenté durant les camps. Afin d'appuyer l'adoption de changements réels de comportement, je suggère que l'éducation internationale soit fournie dans le contexte d'un programme plus vaste et orienté vers l'action qui serait mis en œuvre par l'établissement de départ.

The primary objective of environmental education is to establish environmentally responsible behaviour, the principle components of which include:

- knowledge of the environment and environmental problems;
- awareness of how to solve these problems; and
- motivation to work toward their resolution (Stapp et al., 1969; Tbilisi Intergovernmental Conference, 1978; UNESCO, 1978; Hungerford, Peyton, & Wilke, 1980; Arellano Cruz, 1998).

Although environmental education projects operating under this principle have expanded dramatically during the last 25 years, natural resources continue to be under serious threat, causing doubt as to the efficacy of many of these efforts (e.g., Gigliotti, 1990). Of particular concern is the environmental behaviour of citizens of developed countries, where per-capita resource use puts tremendous pressure on global natural resources (e.g., Miller, 1990; Parikh & Painuly, 1994). Helping students understand their connection to distant and/or abstract global problems has become a central challenge in the growing world economy. Here, I propose that environmental education in an international context can help bridge the conceptual gap between "First World" students and "Third World" environmental problems. I support this argument by examining participant responses to environmental education camps in rural Costa Rica.

Several authors have identified developed countries as the major players in global resource depletion. For example, it has been estimated that the United States, with 4% of the world's population, uses one-third of the world's renewable and non-renewable resources, and produces one-third of the world's waste (Miller, 1990; Parikh & Painuly, 1994). Despite such impressive figures, conventional environmental education often fails to address issues of consumption patterns by either:

- focusing on local environmental issues to the exclusion of a broader national or global context; or
- addressing international issues while failing to adequately define the connection between First World resource use and resource depletion in developing countries.

Efforts to connect global environmental problems to the student's "own back yard" are further impeded by the necessarily abstract nature of discussing problems confronted by unknown people in far away places.

One of the consequences of this process is that well-publicized environmental issues such as tropical deforestation are perceived as primarily biological crises in which "those humans in that country" are the problem. Direct linkages between people who deforest, people who provide markets for forest products (and/or products from deforested lands), and people who live

in tropical regions and experience the direct impacts of resource depletion tend to be overlooked. This is unfortunate because awareness of the social, economic, political, and historical context of deforestation at the local level is fundamental to understanding how humans can be incorporated in the long-term preservation of globally important ecosystems. Indeed, the latest advances in resource management policy support this argument by increasingly emphasizing integration of conservation and development via local community participation (e.g., World Commission on Environment and Development, 1987; Wells, Brandon, & Hannah, 1992; Alpert, 1996). Growing acceptance of this approach has placed a new demand on environmental education, wherein human communities must be addressed not as obstacles to be overcome but rather as important protagonists in the continuing struggle to preserve global natural resources (e.g., Foster-Turley, 1996; Mills Booth, 1996).

One strategy for addressing this issue is international environmental education, defined here as: hands-on environmental education that takes place outside of the student's home country. International environmental education distinguishes itself from conventional ecotourism by including structured formal, and informal, activities designed to increase students' awareness with respect to target environmental challenges and associated solutions. In order to be effective, international environmental education should include cultural/social components as well as salient ecological concepts.

In the last 10 years, several organizations worldwide have begun to offer international environmental education at the grade school, high school, and undergraduate level. Here, I present a case study of the of the Neotropica Foundation's Tropical Youth Center, located on the Osa Peninsula, Costa Rica, as one example of how such an experience can change the perceptions of students and teachers from the United States. Based on this case, I argue that a carefully designed and executed program, which includes environmental and social-economic aspects of the rural neotropics, can positively influence environmental and cultural attitudes of participating students from developed countries. I further propose that in order to have an impact on the environmental behaviour of camp participants, international environmental education should be placed in the context of a participatory, action-oriented program implemented by the home institution.

Overview of the Project

The Neotropica Foundation, a non-profit Costa Rican NGO, established the Tropical Youth Center as an environmental education project on the Osa Peninsula in 1992. The Osa houses the largest remnant of lowland tropical rain forest on the Pacific coast of Central America and is an important center of biodiversity and endemism (Soto, 1992). The region fits the economic profile of many humid lowland tropical areas, in which residents have limited sources of income and make their living through subsistence farming

(Fundación Neotrópica, 1998). The remaining forest on the Osa is partially protected by Corcovado National Park. Outside of the park, however, forests are being rapidly logged and fragmented (Maldonado, 1997). Logging companies that exploit the Osa are generally based outside of the peninsula. They bring in their own labour, and therefore offer little employment for Osa residents, although landowners are sometimes paid a nominal fee for harvested wood (Fundación Neotrópica, 1998).

Locally, the Tropical Youth Center works to mitigate resource depletion by promoting the active participation of Costa Rican youth in conservation and sustainable development. To this end, the project implements many activities, including school visits, support for community groups, teacher workshops, environmental education camps, and the production of didactic materials. Impact studies have indicated a measurable effect of Tropical Youth Center activities on environmental awareness of local school children, particularly in the case of young women (Gastreich, unpublished data). The international camp program was initiated in 1995 to encourage environmentally responsible behaviour among students from developed countries, while providing income to support the Tropical Youth Center's local education program, and is offered free of charge to Osa residents.

Biologically, the center's location permits access to many local ecosystems, including primary tropical lowland rain forest, mangroves, and agricultural ecosystems. All of these factors permit the incorporation of a broad range of issues in the design of international camps, allowing visitors direct exposure to several ecological, sociological, and economic aspects of the region.

International Camp Structure

Tropical Youth Center international camp activities emphasize concrete experiences and hands-on learning. With the assistance of Costa Rican environmental educators, including educators from the Osa Peninsula, camp participants construct knowledge about tropical ecosystems and their management through direct observation of the rain forest and interaction with associated human communities. Camps last 12-15 days, including arrival to and departure from Costa Rica.

Program activities can be divided into four general categories:

- cultural activities;
- field laboratories;
- classroom exercises; and
- lectures.

Each activity has a specific theme related to the principal objectives of the camp (Hamm, 1992; see Table 1).

Activity	Theme
Rain forest walk and forest laboratories (Field Activity)	Systematic observation yields basic insights into the fundamentals of forest ecology.
Origins and Maintenance of Costa Rican Biodiversity (Lecture)	Costa Rica's geological history, location, topography, and climate have made the region particularly receptive to colonization and conducive to endemic speciation.
Biodiversity Workshop (Classroom Exercise)	Diversity has several components and exhibits a quantifiable relationship with total area.
Costa Rican National Parks (2-part lecture,with field trip to Corcovado National Park)	Reserve design must consider a variety of biological, social, and economic factors to be effective.
Impact of Land-use Patterns on Certain Species of Tanagers (Field Laboratory)	Conserving biodiversity requires implementing sustainable land-use practices outside of preserves.
Visit to the tree nursery of the Guacamaya Youth Group (Cultural Activity)	Reforestation may provide an alternative to harvesting primary forest, but requires a favourable socioeconomic climate to succeed.
Visit with the Association of Small Agriculture and Livestock Producers of the Osa Peninsula (ASOPROSA) (Cultural Activity)	Implementing sustainable farming practices represents a formidable challenge for small farmers in the tropics.
Crafts Workshop (Cultural Activity)	The production and sale of local crafts is a potential alternative source of income for some Osa residents.
Community Environmental Education Workshop	Environmental camp participants can promote sustainable living through concrete actions in their home communities.

Table 1. A sample of educational activities included in international environmental camps.

Cultural Activities include visits to and work with local conservation projects, schools, farms, and craft workshops, all with the objective of facilitating a first-hand understanding of community life in the rural tropics. Emphasis is placed on economic and environmental challenges faced by the residents, and alternatives that have been locally proposed and implemented to confront those challenges. Most activities are designed and directed by community members in coordination with Tropical Youth Center environmental educators. Visits generally include a practical project as well as formal and informal interviews with Osa residents.

Field Laboratories are self-guided activities designed to strengthen observational skills and to promote a deeper understanding of ecology from a scientific perspective (Gastreich, 2001). Participants work in small groups (3-5 persons), with each group completing a different laboratory addressing distinct ecological concepts. Groups then present their results orally, using their format of choice. Together, the presentations illustrate interconnections between important ecological processes, facilitating broader group discussions of rain forest ecology.

Classroom Exercises include workshops and discussions that facilitate participatory learning and group reflection. Participants often begin by working in small groups to confront an issue of interest. Workshop and discussion

topics are either presented by the environmental educator or chosen by the participants, depending on the activity. In both cases, discussions are managed to incorporate as wide a range of perspectives as possible, as well as to encourage students to relate what they have learned on the Osa to their home communities.

Lectures, while used minimally, are important core components designed to bring together the group's experience in a way that reinforces theoretical understanding of ecology, conservation, and sustainable development, particularly in the context of the neotropics.

Some Examples of Cultural Activities

Of the four categories described above, cultural activities provided the most novel and effective tool in terms of impacting participant perception of tropical resource management (see survey results below). In this section, I provide a brief description of three cultural activities to allow the reader a more complete picture of this fundamentally important camp component.

Several camps included a full-day exchange with Guacamaya, an independent group that receives technical support through the Tropical Youth Center. Ranging from 14 to 20 years of age, these students have spearheaded a solid waste management campaign, as well as started their own tree nursery to encourage reforestation with native species. At the project, Tropical Youth Center international groups hear directly from Guacamaya members about their history, objectives, and the obstacles they have encountered. Such obstacles can be social as well as economic. For example, the parents of some Guacamaya adolescents initially objected to their children's participation in the group, because they saw the club as a "lazy" use of time that could be better spent in productive activities on the farm. However, once more concrete, positive impacts of Guacamaya began to appear in the community, parental objection diminished entirely. After conversing with Guacamaya members, camp participants do a practical activity relevant to Guacamaya's goals, such as weeding the tree nursery, planting trees, and/or helping with garbage pick-up and sorting.

All international camps include a visit with a local school. This type of activity generally has a profound impact on camp participants for at least two reasons. First, the relative paucity of material resources in the typical one-room grade school of the Osa leaves a lasting impression on those accustomed to more affluent U.S. school systems. Coupled with this, participants are generally surprised that the lack of material resources does not necessarily impede the learning process. In fact, most grade school children on the Osa prove more knowledgeable about the rain forest than camp participants. At one school, Osa children gave a tour of the school's rain forest trail, teaching North American adolescents and adults about aesthetic as well as medicinal uses of local forest resources. Camp participants responded by presenting

information about their own home and environment. As with the Guacamaya exchange, visits to local schools include a practical activity such as planting trees or painting the school. In addition, camp participants always donate supplies, books, and other resources to the schools visited.

As a final example, some international camps include a visit with the Association of Small Agriculture and Livestock Producers of the Osa Peninsula (ASOPROSA). One of the largest small farmers associations on the area, this group includes many adults born on the Osa. Some have experienced profound, environmentally positive changes with respect to the philosophy and practice of small farm management. With the Association of Small Agriculture and Livestock Producers of the Osa Peninsula, camp participants visit small farms, learn about important crop varieties, and hear firsthand about special challenges farmers face such as obtaining loans, reaching adequate production levels, gaining access to markets, and balancing the management of their land between short-term and long-term concerns. International camp participants with rural, farming backgrounds were particularly moved by this experience when they realized that Osa farmers face "all the same problems" as their families back home.

Participant Perceptions of the International Environmental Camps

In cooperation with the Neotropica Foundation, I conducted a series of formal pre- and post-camp surveys in 1998 and 1999 to assess participant perceptions of the immediate impact of attending the international camp. Both surveys consisted exclusively of open-ended questions, and were filled out on a voluntary basis at the beginning and the end of the participants' stay in Costa Rica. Formal surveys were supplemented by group discussions and informal interviews during the camp. Here, the results from 5 camps are presented, including a total of 100 participants, 70 of which filled out the pre- and post-course surveys. For purposes of analysis, results from the two 1998 camps, El Piche and Cara Cara, were combined because only 6 persons attended the El Piche camp. Participants varied widely in age, origin, and educational level (Table 2). Nonetheless, certain consistent patterns emerged in the pre- and post-course surveys across all camps.

Camp Name (Abbreviation)	Participants Males	Females	Age Range	Home State(s)
El Piche/Cara Cara (CC)	17	18	12-57	IL, IN, MD, OH, TX, VT, VA, WI, Washington DC
Mapache (MP)	13	18	16-18	MN
Martilla (MA)	2	12	17-18	FL
Tepiscuintle (TE)	4	15	19-40	PA

Table 2. Profile of camp participants.

First, participants generally entered the camp with a broad awareness regarding important environmental issues (Figure 1). However, most had little direct experience with the rain forest and related issues when they arrived in Costa Rica. Primary sources of information about the tropics included school as well as several popular media sources such as books, magazines, TV, videos, movies, and the internet (Figure 2).

Despite their background knowledge, participants expressed little initial interest in Costa Rican environmental issues beyond "seeing the rain forest" (Figure 3). Learning about additional environmental education topics, such as conservation, management, social, cultural, or economic issues, was rarely mentioned as a reason for coming to Costa Rica either in the formal surveys or in group discussion. By the end of the camp, however, emphasis on the importance of people and culture, conservation, and economics increased dramatically, resulting in a more equitable distribution of interest between these issues and the biology of the rain forest (Figure 4). This change was remarkably consistent across all camps in which the survey was conducted. In general, approximately 65% of the respondents said the experience had changed their vision of conservation and sustainable development (range 40% to 75% per camp). The theme mentioned most often by these surveys was the realization that local people care about their environment and that they require economic support and alternatives in order to preserve the forest. (For a sample of specific comments, please see Table 3.)

In contrast to the overall increase in interest regarding social aspects of conservation, there was very little change in response to the topic of "What can I do?" between pre- and post-camp surveys. However, while it has not been possible to systematically follow camp participants after their return to the United States, several cases exist wherein former participants continue to support conservation and community development on the Osa Peninsula. The most common activities include sending materials for local schools and returning to do community environmental work as volunteers. Activities implemented in the alumni's home communities as a result of participation in international camps have not, however, been well documented.

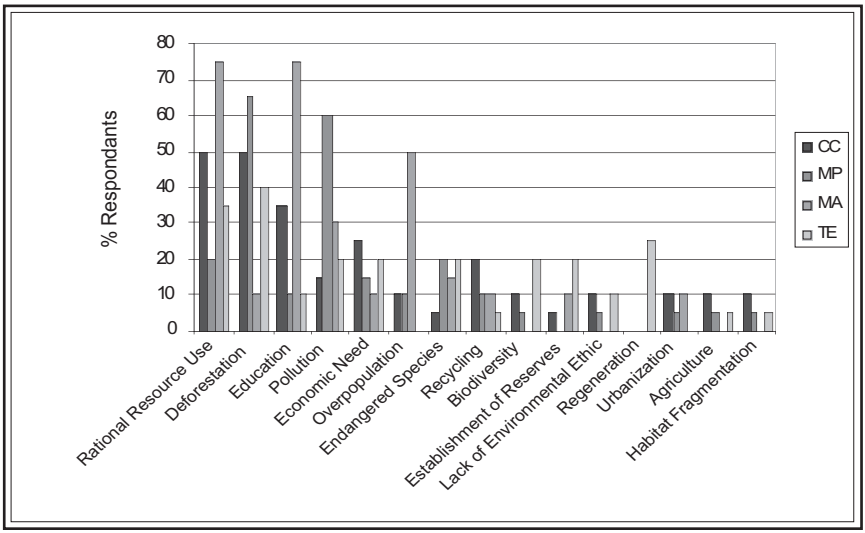

Figure 1. Environmental issues identified as important by camp participants.

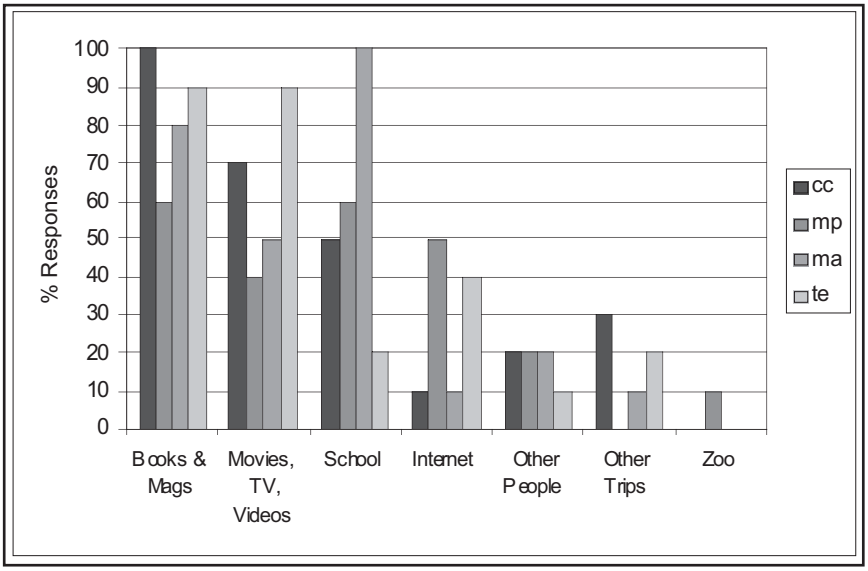

Figure 2. Sources of information about the rain forest.

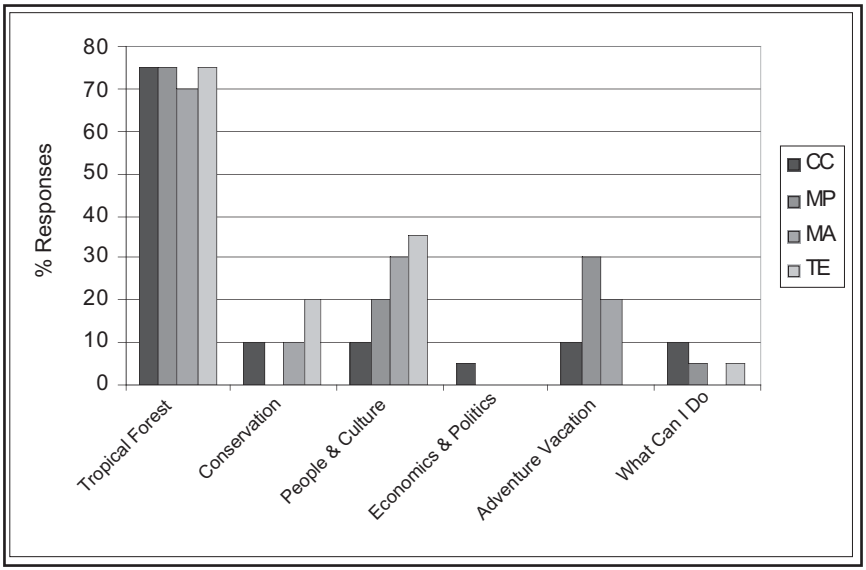

Figure 3. Primary educational interests of camp participants immediately prior to the camp.

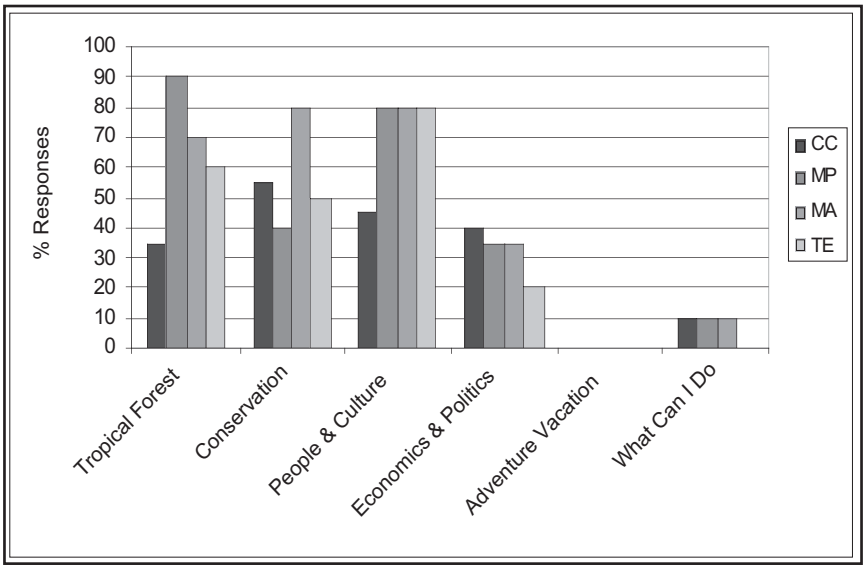

Figure 4. Primary educational interests of camp participants immediately after the camp.

"I was so impressed by everything the little kids knew about the forest; by how important it is to these people."
"Everyone here knows everything about their land because they care about it."
"I learned how much we take for granted with what we have in our lives. These people just got electricity, and they don't even have phones."
"This trip has been a process of putting things in perspective....The way we do it is not the only way, maybe not the best way."
"They had a different perspective on what was important. It was a nice change."
"So little can mean so much to the Costa Ricans."
"I learned the Irish and the Hispanics have a lot in common."
"Meeting people here has inspired me."
"What one person does can really make a difference."
"I hope in 10 years to see some more sustainable development. I am less skeptical after having seen Costa Rica."

Table 3. Participant observations regarding the international environmental education experience.

Discussion

The responses of participants on Tropical Youth Center pre- and post-camp surveys indicate that international environmental education can contribute to knowledge and appreciation of the social, cultural, and economic context of conservation in the neotropics. This is accomplished in part by establishing a personal connection between camp participants and the people who live with tropical ecosystems. Nonetheless, the international camp, as implemented here, had minimal impact on the perceived importance of personal actions in contributing to rain forest conservation. Based on these results and additional observations of Tropical Youth Center camp dynamics, I identify here several important elements in planning an effective international environmental education experience.

First, although camp participants generally had well-established environmental sensitivity upon their arrival in Costa Rica, they did not always clearly understand their ability to positively impact resource management, either at home or abroad. In addition, personal observations indicated that participants sometimes ran the danger of being overwhelmed by the real complexity of factors leading to deforestation on the Osa Peninsula. To address these issues, community work and exchanges with local conservation groups

and schools should be regularly incorporated. Whenever possible, the nature of activities included in these visits should be planned by the local hosts. In the case of the Tropical Youth Center camps, informal interviews and discussions indicated these exchanges had a profound impact on camp participants, who were inspired by the accomplishments of Osa students and community activists working under conditions of very limited resources. Moreover, the inclusion of community work in the camp program put a human face on conservation and emphasized participants' ability to contribute directly to local sustainable development efforts. In some cases, the impact of these activities could be further amplified by including home stays in the camp curriculum.

Similarly, sufficient time should be dedicated to the presentation and discussion of success stories in the classroom, with special emphasis placed on cases involving community-based movements. As a setting for environmental education, Costa Rica provides a rich conservation history that includes serious conflicts over resource management as well as the successful implementation of creative solutions (e.g., Solórzano, 1991; Concepción Cruz, Meyer, Repetto, & Woodward, 1992; Evans, 1999; van den Hombergh, 1999). Such cases, which typically involve collaboration between local, national, and international players, can be easily incorporated in a 10-day camp as concrete and often inspiring (or sobering) examples of conflict resolution in the tropics.

While hands-on learning is easily applied to the international environmental education setting, factors such as time, language and distance can all impede the full application of certain teaching models known to promote responsible environmental behaviour (e.g., Ramsey, 1993; Hines, Hungerford, & Tomera, 1986/87; Ramsey, 1989; Hungerford & Volk, 1990). For example, asking participants to independently investigate and evaluate environmental issues where language and cultural barriers impede access to interviews and secondary sources is often unrealistic. Moreover, removing students from their home environment can backfire if topics such as biodiversity loss, deforestation, and habitat fragmentation continue to be presented as having little relevance to the participants' own communities. Finally, because the international camps represent a short-term event, participants could lose their motivation upon returning to a consumer-oriented environment that neither supports nor understands the profound changes required to live sustainably. Indeed, lack of reinforcement following an environmental education experience has been found to reduce the likelihood of continued environmentally responsible behaviour (Hungerford & Volk, 1990).

Given this situation, international environmental education programs should ideally be included as part of a broader curriculum developed by the student's home institution. This would facilitate background preparation for a more efficient learning experience; and perhaps more importantly, provide a follow-up system that would allow students to integrate their experience with the daily realities of their home communities.

One teaching model that could be applied here is that proposed by Mills Booth (1996) for identifying and implementing ideal environmental behaviours. In this model, a multidisciplinary, participatory team identifies ideal behaviours, conducts research with community actors, negotiates target behaviours, and develops strategies to implement and/or encourage those behaviours. In a very basic sense, such a model could be applied to the international camp as follows:

- Prior to the camp, students, group leaders, and invited professionals from relevant fields can meet to identify key environmental problems associated with rain forests, as well as environmental practices and ideal behaviours that could help reduce or resolve these problems. Practices and behaviours that can be performed directly by the camp participants in their home community should be emphasized.
- During the camp, students and group leaders, together with local environmental educators, school teachers, and community activists, could evaluate their preliminary list of problems, practices, and behaviours based on new knowledge or insights gained while visiting the rain forest and surrounding communities. A final list of "ideal behaviours" should be drafted by the end of the camp.
- After the camp, students and group leaders can conduct audience research in their home community to understand what factors influence the behaviour of "doers" (those that perform the ideal behaviour) and "non-doers" (those that do not perform the ideal behaviour).
- Following audience research, camp participants could select and negotiate target behaviours, as well as develop strategies for implementing and/or encouraging those behaviours among themselves and members of their community.

The above model may not be practical in all cases, but it does provide an example of how the international environmental education experience could be placed in a context of concrete actions. Another model is offered by Rome and Romero (1998), in which students participating in a rain forest study program developed educational materials for the local community in situ. Ideally, the international environmental education experience should facilitate concrete actions both at the site visited and in the students' home community. Providing opportunities for the former requires planning by the host institution, while providing context for the latter requires a commitment from the home institution. In the long run, follow-up by the home institution may prove fundamental for effectively supporting students in their continuing effort to become environmentally responsible world citizens.

Summary

Examination of student perceptions of Tropical Youth Center environmental camps in Costa Rica indicates that international environmental education provides one option for closing the conceptual gap between "First World" environmental behaviour and "Third World" environmental problems. Bringing students into personal contact with the human communities and ecosystems of the rural tropics can greatly broaden awareness of the social, cultural, and economic factors involved in tropical deforestation. In addition, it helps students understand discrepancies in resource use between developed and undeveloped nations. However, this does not necessarily have a direct, measurable impact on student perception of what they can do to help mitigate deforestation. While survey results presented here indicate important immediate impacts in participant perceptions of social aspects of rain forest conservation, they also indicate that international environmental education will be most effective if placed in the broader context of a participatory, action-oriented curriculum maintained by the home institution. This would facilitate more effective background preparation before students arrive at the field site, as well as a follow-up program to assist students in applying their experience to establishing concrete environmentally friendly behaviours upon returning home.

Notes on Contributor

Karin Gastreich has worked in environmental education with national and international students in Costa Rica since 1993. A terrestrial tropical ecologist, she studies arthropod behaviour and trophic interactions. She currently works as Director of Undergraduate Programs with the Organization for Tropical Studies, and has an adjunct appointment with Duke University.

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