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Developing Awareness of the Sustainability Concept

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ABSTRACT: In this article, we discuss the use of the sustainability triad as a framework for teaching sustainability in the classroom. We use a short case study of a national park to show how the triad can be used to determine if its three dimensions (economic, social, and environmental) are congruent or in conflict with each other. The tool is helpful in understanding sustainability in a concrete rather than abstract form.

Key words: applied learning, case analysis, sustainability triad, teaching tool

All educators have a responsibility to provide students with opportunities to become good environmental citizens, not only as consumers but also as providers of environmentally responsible goods and services. In this article, we discuss a method that can be used in the classroom to help students more fully understand, recognize, and implement the concept of sustainability.

The groundwork for environmental education (EE) was laid as early as the 1970s, when the Tbilisi Conference (UNESCO, 1977) set forth goals for providing students with opportunities to develop new behavior patterns regarding sustainable living. By the 1990s, academic communities had put forth the Talloires Declaration (1990) and the Halifax Declaration (1991) to address the need for educational programs that would produce environmentally literate and responsible university graduates (The Talloires Declaration,

1990). All academic institutions have been challenged by university and sustainability leaders to sign and implement these declarations. Disappointed with the universities' progress, the Swansea Declaration implored universities to contribute to "major attitudinal and policy changes for a sustainable future" (The Swansea Declaration, 1993).

These declarations—along with the Tbilisi Conference goals—clearly state that academic institutions need to take action. However, in a recent assessment of environmental progress at North American universities, Herremans and Allwright (1999) discovered that very few universities are even aware of these declarations, let alone carrying out their responsibilities regarding EE in the classroom.

If, as academics, we propose to educate students to make decisions that will reflect an understanding of environmental stewardship and sustainability, then seats of learning must be actively involved in creating models and processes that can be used to bridge the gap between the real world and the classroom. We discuss the sustainability triad (Sadler 1988; 1990) as a classroom tool to assess the results of stakeholder processes and management strategies that affect land and resource use in Canadian national parks. To show how the sustainability triad can be used for analysis, we have included a minicase (Waterton Lakes National Park and area) as a real-life example of how multistakeholder

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values can be pivotal in whether resources are managed sustainably. The triad provides students with a concrete process for identifying practices that are not sustainable and determining why they are not sustainable. The next step is to move stakeholders from an unsustainable position to a more sustainable one; this step is perhaps the most challenging in that it is based on human perceptions and values.

The Waterton Minicase

The minicase presented in this article incorporates two of the three approaches suggested by the Schools Council in its Project Environment (1974) (see Appendix). The council suggested that EE should teach about, for, and from the environment. Students should learn about various environmental issues through investigation and discovery. They should also develop attitudes and values that encourage an informed concern that leads to a personal environmental ethic. Although the council suggested that students should learn investigation and communication skills by using the environment as a source of activities and a medium for inquiry and discovery, the teaching approach does not attempt to include this last approach. However, projects and experiential exercises designed to learn from the environment can easily evolve from a foundation developed through a knowledge base designed to teach about and for the environment.

What is new about this approach to EE in the classroom is that—once students have the tools and understanding of the sustainability triad—they can apply it to any situation. The triad is flexible and can be applied to a local resort, hotel, national park, new development project, or existing business.

Sources of information about activities can come from a variety of learning sources (i.e., students' personal experiences, news articles, development proposals, and guest speakers). Using the sustainability triad as a framework for case analysis offers several pedagogical advantages:

1. Students can more easily conceptualize the links among the three dimensions of sustainability and begin to understand the dimensions more thoroughly by defining activities that fit into each of the areas of overlap (education about the environment).
2. The framework is an aid to understanding that barriers to achieving sustainability frequently stem from a diversity of stakeholder value sets (education for the environment).
3. Use of the framework helps to develop higher learning levels such as judgment, analysis, synthesis, and evaluation (useful in both education about and for the environment).

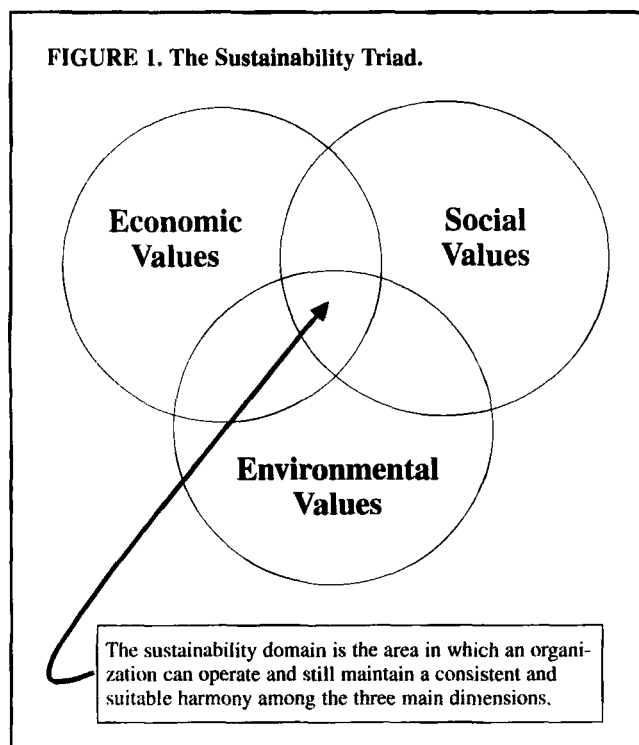
Even though declarations have been designed by university leaders to guide the direction and responsibilities of academic communities, the process of implementation is not as clear. It becomes difficult to move from a set of broad-based general principles to course content covered in the classroom on a day-to-day basis. Evidence of this difficulty lies in the fact that the quality of EE has been criticized as having poor definitions, unclear directions and purposes, and inappropriate, inaccurate, or biased content (McClaren, 1997). To improve the quality of EE, we must take action in many directions. In this article, we focus our discussion on how educators can improve environmental curriculum in two ways. They can:

1. Develop content that springs from our knowledge of what variables are most influential in motivating individuals to be responsible environmental citizens; and
2. Integrate environmental content in every school program as either a separate course, as part of existing course content, or both.

The term *sustainability* is abstract; it means capable of being maintained over the long term. Its derivative, *sustain*, means "to keep in existence; keep going; to carry the weight or burden of; to bear up against" (*Webster's Unabridged*, 1983, p. 1838). The concept of sustainability is often depicted in Western culture by three overlapping circles representing the social, economic, and environmental dimensions (see Sadler, 1988, 1990). Both Hodge (1997) and Fien and Trainer (1993) have elaborated on Sadler's original concept of sustainability. For example, an activity, process, region, or project is deemed sustainable if it maintains, supports, or carries the weight or burden of all three dimensions over the long term (see Figure 1).

The economic dimension represents a system of producing, distributing, and consuming wealth, which is generally defined as the means of satisfying the material needs of people through money, property, possessions of monetary goods, or anything having economic value measurable in price.

FIGURE 1. The Sustainability Triad.



The social dimension represents a system of living or associating in groups or communities and considers the importance of maintaining and improving human living standards. It considers the continued satisfaction of basic human needs as well as higher-level social and cultural necessities (Brown et al., 1987, p. 716). The social dimension does not define wealth in terms of material possessions that can be bought, sold, or stocked for the future, but it suggests fair treatment regardless of gender and racial equality, a basic level of health care, safety standards at work, food standards, exposure to the arts and humanities, recreational opportunities, happy personal life, lack of human exploitation, and more. The social dimension shifts the emphasis from individual rights and economic wealth to community rights and social welfare of all human beings.

The environmental dimension represents a system of providing integrity and preservation of ecosystems (Sadler, 1988, 1990) and is concerned with the continued productivity and functioning of ecosystems (Brown et al., 1987, p. 716). An environmental perspective represents a scientifically oriented outlook toward sustaining the biological and ecological conditions that make development possible (Shearman, 1990). However, the environmental dimension also recognizes that flora and fauna might have value outside their abilities to satisfy the social and economic needs of individuals and societies.

This environmental dimension has two characteristics that make it similar to the social dimension. First, it does not define wealth in terms of possessions that are valued only in the marketplace; the difficulty of determining the cost and benefits of initiatives designed to save the environment as efforts (costs) and accomplishments (benefits) cannot be quantified. Second, the value of the benefits is based on the value sets of a diverse group of stakeholders that place different values on various elements of the environment. Therefore, the benefits derived from strong and healthy ecosystems are defined in terms of each individual's enhanced personal welfare.

Through their meta-analysis of environmental behavioral research, Hines et al. (1986/1987, p. 3) found that individuals who have knowledge about environmental issues or knowledge about how to take action on those issues are more likely to engage in environmentally responsible behavior. The teaching tool builds on the knowledge of what may influence responsible environmental behavior. The minicase and analysis in the Appendix illustrate the use of this tool.

Discussion of Analysis: Congruency or Conflict?

1. *The change in mandate for the park versus the traditional use of the park (environmental–social conflict).* The park's main thrust is to maintain its ecological integrity; however, the ranchers and other visitors often have a priority for social interests. Ranchers historically used the park as a source for recreation: the dance hall and swimming pool. These different stakeholder philosophies of the prima-

ry purpose for the park create a conflict between the environmental and social dimensions of the triad.

2. *Wolf program (attempt at social–environmental–economic congruency).* In an effort to bring the economic and environmental dimensions closer together, a compensation program was introduced by Southwest Alberta Livestock Compensation Program to address the economic interests of the ranchers for their loss of livestock. Despite the efforts, the wolf population continued to decrease. The consequence suggests that the social perspective—supported by a strong negative cultural attitude toward wolves—caused the sustainability effort to fail.

3. *Municipal districts versus Biosphere Reserve (economic–environmental conflict).* Increased pressure has been placed on the lands surrounding national parks because of increases in per capita income and the desire to escape from urbanization, creating additional demand for vacation homes. These different stakeholder philosophies represent a conflict between the economic interests of the municipal districts and the environmental interests of the park.

4. *Ranchers versus municipal district (economic–social conflict).* Ranchers do not want agricultural lands to be subdivided for vacation homes and other tourist interests, but municipal districts want to increase the tax base and encourage short-term employment. These stakeholder philosophies represent a conflict between the municipal districts' economic interests and the ranchers' social interests.

5. *Aboriginal interpretation and tourist behavior (working toward environmental–social congruency).* Involving local aboriginal communities in the interpretation of the landscape in the education of tourists in the park can assist in working toward tourism that is ecologically sustainable. Waterton is close to a large aboriginal population that traditionally used the area. In the social context of sustainability, aboriginal interpreters may use spiritual discussions to raise awareness of and appreciation for the ecological significance of the landscape. Aboriginal interpreters are also in a position to raise visitor awareness about the native culture and the historical ties to the area.

6. *The park's new mandate and feeding of animals (economic–environmental–social conflict).* Even though the park's mandate is to preserve its ecological integrity, most of management's efforts are spent on satisfying the social and recreational needs of the visitors rather than informing them about proper behavior toward wildlife and other ecological considerations. One mechanism to overlap the economic and environmental aspects of the situation is to fine visitors for disturbing wildlife; however, this effort has failed because there is no real means to enforce the penalty. Although all three dimensions are represented in this situation, the implementation procedure and the related behaviors of the parties involved cause the resulting unsustainability.

Identifying the congruencies and conflicts among the three dimensions of social, environmental, and economic sets the stage for the next step: discussing how the situation

can be improved. When discussing solutions, students' opinions will often differ about what actions the park should take in reaching the goal of sustainability. Some people might not agree that the conflicts discussed are really conflicts. To understand why disagreement in opinions exists, students must understand their own values by looking at three continuums and thinking about where they would place themselves and others on these continuums. Such diversity in basic human values makes it even more difficult to find a common ground for reaching a sustainable target as a society. These three continuums are (Kluckhohn and Strodtbeck, 1961): (a) self-interest–community interest, (b) only humans have value—all life (flora and fauna) has value, and (c) short-term vision–long-term vision.

The students will represent a range of values by placing the stakeholders somewhere along the continuum. Groups that believe strongly in individual rights and interests may have little regard for community rights or interests. Holding the belief that only humans have value would lead to strong support of interchangeability of resources and their related value; for example, the products produced from a tree have as much or more value than a tree standing in a forest. A short-term vision would believe that one generation has no responsibility to protect resources for future generations. Students can quickly become aware of why it is difficult to resolve environmental conflicts. The increased awareness of why conflicts occur can aid in the process of coming to a solution.

Analyzing a situation from the point of view of the sustainability triad helps to unveil the underlying causes of unsustainability and to seek solutions (education about the environment). Furthermore, such an analysis highlights the necessity for a change in values if true sustainability is to be achieved and helps to explain the underlying reasons for consistency or conflict among the dimensions and what underlying values drive the result. Expanding the use of the sustainability triad in this manner provides education for the environment and will allow students to understand more fully their own personal environmental ethic.

The concepts drawn out by the national park minicase can easily be transferred to a business, institute, project, or other activity that has been in the local or national news as a point of public controversy. Using an example with which students are familiar can help them relate to and better understand the nature of multidimensional decisions, not only as members of the business community but as members of society.

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APPENDIX

Minicase for Analysis

Waterton Lakes National Park is a small park in Western Canada that has been designated as a biosphere reserve through UNESCO's "Man and the Biosphere" program. This designation means that the park is a protected core with the landscape surrounding the park acting as a zone of cooperation in which human impacts are monitored. The unique combination of prairie and mountain landscapes generates a rich variety of flora and fauna. Therefore, wildlife is frequently seen in the town site within the park, where visitors sometimes are found feeding the wildlife. Park management finds itself engaged in a variety of activities (i.e., giving directions to campgrounds and picnic sites) with little time left to educate visitors about proper behavior with wildlife. Even though park employees can impose fines, usually the cost of the court process to enforce payment is often greater than the fine imposed.

In addition to the visitors to the park, there are other stakeholders such as ranchers, surrounding municipal districts, aboriginal communities, and Parks Canada. Each stakeholder has a different point of view, which is listed below.

Ranchers: The park was set aside as the Kootenay Lakes Forest Park in 1895 at the request of a local resident. The intent was to protect the serene beauty of the area from encroaching settlements. For years, the lakes had been a common resort for camping and vacationing for the surrounding neighborhood. Many of the ranchers remember the many social activities that occurred such as a dance hall that provided great nightlife. The ranchers also remember when they could camp anywhere without restrictions. Some activities have been phased out, however, as the park's mandate has

changed. Some ranchers see the area as their own playground; therefore, they are not open to regulations that restrict their activities in the park or on the surrounding lands. Consequently, many of the local ranchers do not understand or support the new biosphere reserve program.

Municipal districts: When limitations for development inside the park occur, land-use pressures shift to the surrounding areas. The surrounding municipalities are likely to benefit from tourism growth; land areas that are subdivided for homes contribute to the tax base. Vacation homes create employment for builders, land speculators, and real estate agents but result in short-term economic gains.

Local aboriginal communities: In the historical aboriginal view of the landscape, culture is integrated with nature at the level of ecosystems. Within this context, the aboriginal culture is structured by the intrinsic and spiritual values that connect the people to the land. This holistic view of interconnectedness between humans with all living things is fundamentally different from the traditional Western worldview of humans and nature that has dominated park-management strategies.

Parks Canada: The mandate of all national parks in Canada was amended in 1988 to recognize and maintain ecological integrity and to protect intact ecosystems. In an attempt to fulfill this mandate, there has been increased recognition that ecosystems within park boundaries are affected by activities outside the park. In the Waterton area, the presence of wolves has created conflict between the ranchers' historical values and economic interests and the Waterton Lakes National Park ecological mandate. The ranchers' concern that wolves kill their livestock once they leave the park boundaries led to a Southwest Alberta Livestock Compensation Program introduced to compensate ranchers if their livestock were killed by wolves or bears. Despite the compensation program's efforts to meet the ranchers' economic needs, the program failed because the ranchers were adamantly opposed to the presence of wolves in the area. Consequently, the wolf population in the area decreased rapidly because of the actions of the ranchers, landowners, government agents, and hunters.

Adapted from Reid, R. E. (1996). *An investigation of human values: Building a foundation for indicators of ecologically sustainable tourism*. (Master's thesis, University of Calgary). Ottawa: National Library of Canada. Microform TJ-18698.