Chapter 13
“Green” Teaching and Learning in Schools

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ABSTRACT
This chapter addresses the importance of shaping the school’s teaching and learning culture to exert a powerful influence on students in regard to environmental conservation. The chapter presents 19 successful and practical examples of “teaching green” in action contributed by practicing elementary and secondary school teachers. How to contact the contributors is also provided in the chapter.

INTRODUCTION
Not too many years ago, one of the co-authors of this chapter experienced a first-hand lesson in the fragility of ecological sustainability. He awoke one morning looking forward to enjoying the sun come up over the opposite shore of the lake where he lived only to be greeted by the sight of hundreds of dead bass and other varieties of fish floating on the surface of the water. When he and others, including a number of biology professors, who owned shoreline homes probed why, they found that a very slight change in the lake’s oxygen content turned out to be culprit.

Although what led to the change in the lake’s oxygen content was never determined to a high degree of certainty, the chemical runoff residue from many years of fertilizing lawns became the likely suspect. Increased algae growth due to the nitrogen provided in the fertilizer appeared to cause the slight variation in the level of oxygen. The homeowners then took extra effort to minimize any negative aspects related to lawn fertilization and the lake’s oxygen balance returned to normal: the “great fish kill” became history.

Because the chapter’s other two co-authors live some distance away from their worksites, they find themselves regularly using the state’s green,
forested roads to commute to and from their jobs as Mississippi educators. The moderate commuting distances prove enjoyable for the most part, but troublesome in one aspect: fast-food styrofoam containers, plastic utensils, paper accessories, and aluminum cans are seen all too often competing with native flora for roadside residency. Not only do the fast-food artifacts distort nature’s aesthetics, the chemicals which comprise them also harm animal and plant life.

Although the chapter’s two commuting co-authors believe that most people know not to litter, too much littering, nevertheless, continues to occur.

Simply stated, the question we pose in this chapter is: What can educators at both the elementary and secondary levels do to help their students develop an ethical commitment to environmental conservation that results in ecological sustainability?

ECOLOGICAL SUSTAINABILITY: SHAPING SCHOOL CULTURE

We believe that developing an ethical commitment to environmental conservation in students, resulting in valuing ecological sustainability, starts with shaping the school’s culture. Every school has a culture. In some schools, the culture strongly encourages environmental conservation; while in other schools, commitment to conserving the environment is laissez faire at best (Blendinger, 2006).

Also, we know from our experiences as three educators whose combined time of working in schools exceed the century mark that guiding beliefs and values are the heart of a school’s culture. Why? Because they provide a sense of direction for those who comprise the school’s teaching and learning community: students, teachers, staff members, administrators, and parents. Members of the school community gain great strength from the beliefs and values guiding the instructional process because they define the fundamental character of the school: in regard to environmental conservation, the belief-values concept translates into promoting student behaviors (e.g., tossing or not tossing trash out of car windows) that either support or do not support ecological sustainability (Deal & Peterson, 2009; Schmidt & Willott, 2002).

It has been our experience, however, that a school’s guiding beliefs do not create themselves. Values do not occur willy-nilly. They must be carefully and systematically developed by the adult members of the school community.

We believe that student awareness regarding the importance of conserving the environment can be significantly fostered through project-based learning, featuring hands-on student activities.

In the environmental conservation realm, project-based learning (PBL) provides an alternative to what constitutes a text-driven and paper-based approach to learning about ecological sustainability. PBL integrates knowing and doing. Not only do students gain content knowledge, they also apply what they know to solve authentic problems and produce results through hands-on activities. Valuing ecological sustainability is caught, as well as taught (Miller & Spoolman 2013; Schmidt & Willott, 2002).

ENCOURAGING ENVIRONMENTAL CONSERVATION THROUGH PROJECTS

Environmentally concerned teachers throughout the world emphasize “green teaching” through projects, coupled with hands-on instructional methods, that increase students’ environmental awareness and encourage them to value the concept of ecological sustainability. In this section, we present 19 examples of successful and practical projects addressing “green teaching and learning” in action. We are much appreciative of the following classroom teachers who shared their projects with us: Ashlie Arkwright, Andrea Baker,