# 147 PRACTICAL TIPS FOR TEACHING SUSTAINABILITY

## *Connecting the Environment, the Economy, and Society*

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# Foreword by David K Orr

## ALL HANDS ON DECK: TEACHING SUSTAINABILITY

What does the word *sustainability* mean to a typical high school or college student? The answer probably is "not much." For all of the learned talk about sustainability and despite the flood of ink spilled to define the term, the first generation that must confront the stark reality of the global crisis of unsustainability (what was once called "overshoot") is, I suspect, either overwhelmed by it all or just oblivious. To most, climate change, biotic impoverishment, decline of land and seas, deforestation, pollution, poverty, terrorism, and so forth seem very distant from the problems they face every day including those of drugs and violence. Their music seems to suggest a great deal of diffuse anger and confusion but little awareness of the storms ahead. Polls indicate that the goal of getting ahead economically is still much more important to most of the rising generation than that of improving the world.

Teaching about the challenges of sustainability generally can be rather like teaching health care in the emergency room of a big city hospital on a Saturday night in July-one human tragedy followed by yet another, all night long. The history of environmental policy in the United States, for example, is one sorry record of thirty years of evasion on the most important issues of the time. For the young people who do study such things it must be disconcerting to learn that their future is being compromised daily by shortsightedness, greed, ignorance, and stupidity.

In my own approach to teaching environmental studies, I've found one generally dependable antidote to what is otherwise a fairly dismal pedagogical situation. The origins, not surprisingly, are in the writings of John Dewey, Alfred North Whitehead, Maria Montessori, and J. Glenn Gray. In varying ways each proposed to make learning an active engagement with the world, not merely the study of second-hand abstractions. Applied to the problems of sustainability, that approach underlies much of the green campus movement and campus ecology courses taught over the past fifteen years. In those efforts students have applied their energy and intelligence to the goal of making their college and university campuses sustainable. The scale is small enough to be understandable but large enough to be a significant model. All campuses take in energy, water, and materials and put out waste in various forms.

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The idea behind the green campus movement is simply to make environmental impacts transparent and thereby render them into solutions that reduce and recycle wastes, reward efficiency, eliminate carbon emissions, improve policies governing grounds management and building standards, and use institutional purchases and investments to catalyze sustainable local economies. But this is a means to the larger end of equipping young people with the analytical skills and wherewithal to become change agents beyond the years of formal education.

From the beginning of the campus ecology movement in 1987 to the present, hundreds of institutions have begun the process of transformation. Beyond some tipping point they become what Peter Senge calls "learning organizations" that calibrate their mission and operations with the larger biophysical realities of the Earth. Many of the most exciting experiments in sustainability are being led by students and recent graduates still in their twenties who are helping to fill a vacuum of leadership in the society. They are helping to lead the effort to reduce carbon emissions, promote renewable energy, build high performance buildings, and eliminate waste. Instead of the typical career path that defers leadership to the later stages of life, they've recognized the emergency of the twenty-first century for what it is. In naval terms it is time to get all hands on deck to join the fight for a habitable planet. And when the fight is joined, real learning begins.

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# Foreword by Anthony Cortese

## HIGHER EDUCATION AND SUSTAINABILITY

Higher education has been granted a unique role by society. It has been granted tax-free status, the ability to receive public and private funds, and academic freedom in exchange for educating students and producing the knowledge that will result in a thriving and civil society. Higher education is facing its greatest challenge in living up to its responsibility because humanity is at a crossroads. For the first time in human history, humans are pervasive and dominant forces in the health and well being of the earth and its inhabitants. We are the first generation capable of determining the habitability of the planet for humans and other species. No part of the earth is unaffected by humans, and the scale of our impact is huge and growing exponentially. (The Innuits in Alaska has the highest level of PCBs and DDT in their bodies in the world, despite being one thousand miles from any industrial activity.)

Despite all the work we have done on environmental protection, all living systems are in long-term decline and are declining at an increasing rate according to all international scientific, health, and policy organizations. This is happening with 20% of the world's population consuming 80% of the world's resources. How will we cope in a world that will have nine billion people and that plans to increase GWP by 500% by 2050? This is an awesome ethical responsibility for us, especially in higher education, and teachers at every level can play an important role in helping us find that sustainable path.

As Einstein said, "We can't solve today's problems at the same level of thinking at which they were created." We need an unprecedented shift in the way we think and act. We currently view health, social, economic, political, security, population, environmental, and other major societal issues as separate, competing, and hierarchical when they are really systemic and interdependent. For example, we do not have environmental problems, per se. We have negative environmental consequences of the way we have designed our social, economic, and political systems. *We have a defacto systems design failure.* The twenty-first-century challenges must be addressed in a systemic, integrated, and holistic fashion. *Sustainability requires that we focus simultaneously on implementing systemic changes that improve health for current and future humans; building strong,*

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*secure, and thriving communities; and providing economic opportunity for all restoring and preserving the integrity of the life support system.*

Higher education plays a critical but often overlooked role in making this vision a reality. It prepares most of the professionals who develop, lead, manage, teach, work in, and influence society's institutions, including the most basic foundation of K-12 education. Besides training future teachers, higher education strongly influences the learning framework of K-12 education, which is largely geared toward subsequent higher education. Starting in seventh grade, students start learning in silos in order to get into college. For the first time in U.S. history, seventy percent of children in the K-12 system intend to go to college. Moreover, given the need for a much more highly skilled workforce for the twenty-first century, lifelong education becomes another critical role for higher education.

However, the current educational system is reinforcing the current unhealthy, inequitable, and unsustainable path that society is pursuing. The people who are leading most of society's institutions down this path are graduates of the best colleges, universities, and professional schools in the world. As *David* Orr *says, the crisis humanity is facing is a "Crisis of mind, perception and heart.* It is not a problem IN education; it is a problem OF education...." This is not intentional it is a function of a worldview that is no longer suitable for creating a world that works for everyone. Higher education, following and enabling this worldview, is generally organized into highly specialized areas of knowledge and traditional disciplines. Designing a sustainable human nature requires a paradigm shift toward a systemic perspective emphasizing interdisciplinary understanding, collaboration, and cooperation that must be led by higher education.

What if higher education were to take a leadership role, as it did in the space race and the war on cancer, in preparing students and providing the information and knowledge to achieve a just and sustainable society? The education of all professionals would reflect a new approach to learning and practice. A college or university would operate as a fully integrated community that models social and biological sustainability itself and in its interdependence with the local, regional, and global community. In many cases, we think of teaching, research, operations, and relations with local communities as separate activities; they are not.

All parts of the university are critical in helping to create transformative change in the individual and collective mindset. Everything that happens at a university and every impact, positive and negative, of university activities shapes the knowledge, skills, and values of the students. Future education must connect head, heart, and hand. The educational experience of graduates must reflect an intimate connection among ***curriculum*** and (1) research; (2) understanding and reducing any negative ecological and social footprint of the institution; and (3) working to improve local and

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regional communities so that they are healthier, more socially vibrant and stable, economically secure, and environmentally sustainable.

Just imagine if, in the twenty-first century, the educational experience of all students is aligned with the principles of sustainability To achieve this, the following elements will need to be in place:

- The ***content of learning*** will reflect interdisciplinary systems thinking, dynamics, and analysis for all majors, disciplines, and professional degrees-education would have the same ***lateral rigor*** across as the ***vertical rigor*** within the disciplines.
- The ***context of learning*** will change to make human/environment interdependence, values, and ethics a seamless and central part of teaching all disciplines, rather than isolated as a special course or module in programs for specialists. All students will understand that we are an integral part of nature. They will understand the ecological services that are critical for human existence, how to all the health, social, economic, and environmental impacts visible and as positive as possible.
- The ***process of education*** will emphasize active, experiential, inquiry based learning and real-world problem solving on the campus and in the larger community.
- Higher education will *practice sustainability.* Campuses will "practice what they preach" and make sustainability an integral part of *operations, planning, facility design, purchasing, and investments,* and tie these efforts to the formal curriculum. The university is a microcosm of the larger community. Therefore, the manner in which it carries out its daily activities is an important demonstration of ways to achieve environmentally responsible living and to reinforce desired values and behaviors in the whole community. *These activities provide unparalleled opportunities for teaching, research, and learning.*
- Higher education will form *partnerships with local and regional communities* to help make them healthy, socially vibrant, economically secure, and environmentally sustainable as an integral part of higher education's mission and the student experience. Higher education institutions are anchor institutions for economic development in most of their communities, especially now that the private sector moves facilities, capital, and jobs frequently as mergers, acquisitions, and globalization become the norm for corporations. The four thousand higher education institutions in the United States are, themselves, large economic engines with annual operational budgets totaling three hundred billion dollars in 2003. This is greater than the GDP of all but twenty-five countries in the world.

The issue is not the ability of higher education to take on this challenge. It is the will and the timeframe of doing so. *If higher education does not lead the sustainability effort in society, who will?*

Fortunately, there are hundreds of examples of changes in higher education activities that shape the total student experience. These examples are available through the new Association for Advancement of Sustainability in Higher Education (www.aashe.org); Second Nature publications; Second Nature's web site; and a number of other

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organizations, such as NWF Campus Ecology Program (www.nwf.org/campusecology); and University Leaders for a Sustainable Future (www.ulsf.org).

The most successful changes are those in which the formal curriculum is an integral part of the other functions of higher education. Most are driven by faculty and student pressure but, fortunately, an increasing number are driven by high-level academic administrators and operations executives. The biggest remaining challenge is the reorientation of the curriculum. Higher education is perilously slow in this arena. 147 *Tips for Teaching Sustainability* is a critically important guide for faculty and others that will greatly enhance the ability of higher education as well as other organizations to make sustainability the goal of learning and practice.

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# Preface

At its core, this book is about empowerment, facing reality, and learning to think and act with greater reverence for Earth, its limits, and its intelligence, and then teaching others to do the same. Sustainability is one of those big, complex concepts that defy easy definition or simple responses, yet demand attention for our collective well-being. It affects all of us, regardless of our background, age, political affiliation, geography, or other characteristics. It requires cooperation and collaboration from ecologists, sociologists, economists, community leaders, business leaders, and many, many others who have not historically worked together.

If you address these concepts, then teaching about sustainability can be truly transformative and can challenge people of all ages and backgrounds to think and act in very new ways. In what follows, we offer you a range of concise, practical tips for the following activities:

- Rethinking some of our most basic assumptions
- Considering creative solutions
- Communicating honestly and navigating emotions
- Balancing challenges with a realistic optimism

In his landmark Earth in Mind, David Orr sounds the alarm about expanding human populations and our appetite for resources juxtaposed with our short-sightedness about Earth's limits. In Natural Capitalism, Paul Hawken, Amory Lovins, and Hunter Lovins describe the growing threat to our collective health from mining Earth's resources without any economic or social calculation for the effect of resulting toxic wastes. This physical damage to the environment is also rippling back on us in ever-larger social and economic tsunamis. If these authors are right-and the latest edition of State of the World by the Worldwatch Institute confirms these trends-then our own work on teaching sustainability in all areas of life is especially crucial and germane. As Orr states, "It is not education, but education of a certain kind, that will save us" (Orr 1994, 8).

*147 Tips for Teaching Sustainability* presents ideas and strategies for addressing tough, compelling issues in practical and effective ways. Our team of contributors included scholars; teachers and students; and local business people; as well as representatives from non-profit organizations working locally, nationally, and globally. This book was very much a community effort, just as sustainability can, and must, be a community effort that starts with the local community and has global effects.

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## THE TRIPLE BOTTOM LINE

This community effort became especially important as we pushed past our individual disciplinary "silos" and focused on sustainability as a reflection of environmental, economic, and societal factors. As every ecologist will insist, a more holistic, interconnected perspective makes sense in both practical and theoretical terms. Complex topics resist simplistic, reductionistic analyses and, instead, require sophisticated, interdisciplinary thinking and creativity. And so it is with the study of sustainability.

## WHY "TIPS" AND WHY 147?

Anyone who teaches appreciates the value of an idea that is practical and concrete- something that can be tried, adapted, and assessed. We understand that many teachers become impatient with theories that lack applicability. However, we also recognize the limitations of any cookbook that only offers recipes and no explanations that would permit adaptation or further experimentation. The best analogy we have is when teachers emphasize memorization for objective tests without any real commitment to promoting a deeper understanding. Likewise, everyone has been frustrated by students, coworkers, or others who seem unable to adapt their learning for new challenges. The sources we include in many of our tips give you rich resources to tap as you move forward. As Jared Diamond concludes in *Collapse,* the test of every culture is whether it will adapt to whatever threats emerge, or wither and disappear.

As for the number 147? Other books on teaching offer some round number of tips. Very simply, the first in this series came to 147, so our publisher took it on as a signature marker.

## CONCEPTS AND STRATEGIES

Underlying our own "tips for teaching sustainability" are a number of core concepts that define sustainability:

- Underlying systems thinking
- Interconnections between the natural world and human societies
- Ethics, values, and the sacred
- Learning from nature
- Best use of technolog
- Role of personal responsibility and empowerment
- Collective need for new visions

For these concepts, we are indebted to the pioneering work of Second Nature in articulating a direction for higher education to address sustainability. Instead of bringing these concepts into every tip, however, we offer concise, accessible explanations along- with a recommended

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activity so that you can see an idea in practice and learn through experience. Many colleagues contributed to this process and are noted in the text.

We also recommend strategies for teaching important aspects of sustainability:

- How cooperative and collaborative learning become important for emphasizing principles of interconnectedness
- How discovery learning can equip people to address complex and challenging problems
- How the use of experiential learning can get students out into the natural world
- How learning can be deepened by putting lessons into practice

## RESPONSIBILITYAND COURAGE

**As** a final thought, we turn to the Preamble to the Earth Charter that first appeared at the Earth Summit in RIO de Janeiro in 1992: "We stand at a critical moment in Earth history, a time when humanity must choose its future.... We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace" (Earth Charter Initiative 2000). We hope that our own book will bring something new and useful to this challenge we all share.

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