
Education for Sustainability

The University as a Model of Sustainability

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There is growing consensus among a wide variety of individuals, the scientific community and national and international organizations that current strategies to meet human needs are unsustainable. How then, do we create a society that allows all present and future humans to be healthy, have their basic needs met, have fair and equitable access to the Earth's resources, have a decent quality of life and preserve the biologically diverse ecosystems on which we all depend? This will require a paradigm shift in the relationship of humans to each other and the environment in a manner that is mutually beneficial and sustainable.

The Future Direction of Higher Education

Such a shift in the thinking, values and actions of all individuals and institutions worldwide calls for a long-term societal effort to make environmental and sustainability concerns a central theme in all education. If we are to achieve a sustainable future, institutions of higher education must provide the awareness, knowledge, skills and values that equip individuals to pursue life goals in a manner that sustains human and non-human well-being for all current and future generations. Since the 3,800 institutions of higher education in the United States prepare most of the professionals who develop, manage, teach in and influence society's institutions, colleges and universities necessarily play an instrumental role in how society defines and realizes its goals.

Institutions of higher education bear a profound moral responsibility to increase the awareness, knowledge, skills and values needed to create a just and sustainable future.

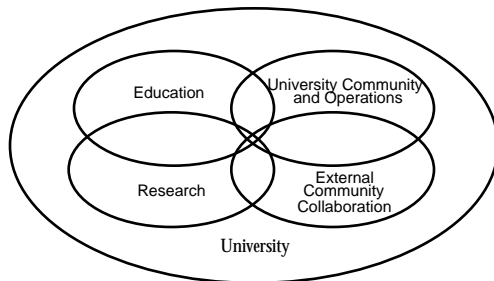
Designing a sustainable future requires a paradigm shift toward a systemic perspective which encompasses the complex interdependence of individual, social, cultural, economic and political activities and the biosphere. Some changes in human activities which will flow from this new sustainability paradigm include the following:

- Future scientists, engineers and business people will design technology and economic activities that sustain rather than degrade the natural environment, enhance human health and well-being, and mimic and live within the limits of natural systems.
- All professionals will understand their connection to the natural world and to other humans. They will know where products and services come from, where wastes go and what they do to humans and other living species. They will understand how to minimize this "ecological footprint."
- All current and future generations of humans will be able to meet their basic needs, pursue meaningful work and have the opportunity to realize their full human potential personally and socially.

This will require comprehensive short- and long-term educational change necessitating unprecedented leadership and commitment by colleges, universities and professional schools. Institutions of higher education, obliged by their missions to prepare their students for life in the twenty-first century, cannot overlook the fact that, in the words of David Orr, Professor and Chair of the Department of Environmental Studies at Oberlin College, "we now face the first truly global crisis which concerns our survival as a species, the terms by which we might do so, and what it means to be human." In order for higher education institutions to successfully discharge their obligation to prepare their graduates to participate responsibly as citizens in the twenty-first century, they must become models for sustainability.¹ This will require higher education reform on many fronts.

Overarching Educational Philosophy

The education of all professionals will reflect a new approach to learning and practice. The university will operate as a fully integrated community that models social and biological sustainability itself and in its interdependence with the local, regional and global community.



The content of learning must embrace interdisciplinary, systems thinking to address environmentally sustainable action on local, regional and global scales over short, medium and inter-generational time periods. Education must have the same "lateral rigor" across the disciplines as the "vertical rigor" within the disciplines.

The context of learning must change to make the human/environment interdependence and values and ethics a central part of teaching in all the disciplines, rather than isolated as a special course or module in programs for environmental specialists. Environmental specialists are necessary but not sufficient to achieve sustainability because all people occupy ecosystems, consume resources and produce pollution and waste. All students must understand that we are an integral part of nature and that we are co-evolving with all the other species in the biosphere. This will require the curriculum to emphasize:

- systems thinking
- how the natural world (including humans) evolved and works
- the interdependence of humans and the environment, including the relationships among population, consumption, culture, social equity, health, economy and the environment
- how to assess and minimize the ecological footprint of human activity
- the technical, design, scientific and institutional strategies and techniques that foster sustainable development including methods or ways...
 - + to achieve a five- to ten-fold increase in energy and natural resource productivity
 - + to mirror and live within the limits of natural systems, e.g.,
 - * live off renewable energy²

- * operate in acyclical manner (where one's waste = raw material or nutrient for other processes or activities)²
- * utilize renewable resources at a rate less than or equal to the natural environment's ability to regenerate the resource
- + remediate environmental damage and restore ecosystems
- + preserve biological and cultural diversity
- social, cultural, governmental and economic frameworks for guiding just and sustainable development
- strategies to motivate environmentally sound and socially just behavior by individuals and institutions including non-material means of meeting non-material needs

Research must focus on the above and must help in the establishment of an ethos to stabilize population, assure the just distribution of the world's limited resources and promote social and economic values and policies that lead to a healthy and sustainable future.

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Educational psychologists tell us that we retain 80 percent of what we do as opposed to 10–20 percent of what we hear and read. Therefore the process of education must emphasize active, experiential learning and real-world problem solving on the campus and in the larger community. For example, the learning experience for students should include:

- working on actual, real-world problems of communities, government and industry as part of the curriculum
- working in groups so that they will be able to effectively collaborate as future managers and leaders

Higher education must "practice what it preaches" and make sustainability an integral part of operations, 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. By focusing on itself, the university can engage students in understanding the "institutional metabolism" and ecological footprint of materials and activities. Students can be made aware of their "ecological address and footprint" and they can and should be actively engaged in the practice of environmentally sustainable living.

Moreover, the annual buying and investment power of the 3,800 U.S. institutions of higher learning (\$185 billion in purchasing; \$85 billion in endowment)³ make them important players in creating market demand for environmentally sound and socially just goods and services and in supporting the local communities in which these institutions are located. Many colleges and universities engage in some of these activities, often because it saves money. A recent report of the National Wildlife Federation's Campus Ecology Program entitled: "Green Investment, Green Return", demonstrated that twenty-three projects in fifteen colleges and universities across the United States are saving \$17 million annually. These include projects in energy and water conservation, transportation, dining services, hazardous chemical management and recycling.⁴ Under the direction of David Orr, with administration and student help, Oberlin College has designed one of the most environmentally sustainable buildings at any university. For example, no toxic building materials were used in its construction; it is completely solar-powered and produces excess energy for the campus; it causes no air pollution and the effluent water meets EPA standards for drinking water quality.⁵

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Making the Transition Through Higher Education

Can higher education help make the transition to a sustainable path within the twenty to forty year time frame called for by the United Nations, scientists and other prominent leaders? Without strong outside influence, higher education is not likely to change its direction far enough or fast enough. Historically, this slow pace is due to the isolation of higher education from many of society's problems, the overwhelming dominance of the disciplinary approach in learning and research, and the tendency to be "producer" driven rather than "customer" driven.

Strong, rapid and largely unprecedented efforts by all of higher education's stakeholders are necessary to help move the higher education system on a path to sustainability. Students, parents, alumnae, prospective employers, organizations funding research and education (govern-

ment, industry and foundations), accrediting organizations and the public are all consumers, clients or supporters of higher education's services. These factions of society must work with the higher education system in creative ways to encourage education and research for sustainability. There is a growing student demand at colleges and universities in the United States and internationally for environmental education and for institutions to reduce the environmental impact of their own operations. This effort must be encouraged and expanded. Both directly and through their hiring practices, prospective employers could expand efforts to communicate with higher education about the need for both environmental specialists and environmentally literate and responsible graduates in all fields. Environmental education could be encouraged or required by all levels of government (including research and education funding) and by accrediting organizations.

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Because higher education's transition to Education for Sustainability is challenging and urgent, six United States nonprofit organizations have evolved with the sole purpose of assisting in this effort. The World Resources Institute's Management Institute for Business and the Environment (<http://www.wri.org/wri/meb/>) is currently working with over 100 business schools in the United States and Latin America to integrate business/environment learning into the curriculum. The Center for Respect of Life and Environment (<http://www.center1.com/crle.html>) is working with schools of theology and liberal arts colleges on education for sustainability programs. The Association of University Leaders for a Sustainable Future (<http://www.ulsf.org>) now affiliated with CRLE is helping promote the implementation of the Talloires Declaration through an international network of university leaders. The National Wildlife Campus Ecology Program (<http://www.nwf.org/campus>) works through students to initiate programs for "greening" of campus operations and has thus far reached over 500 colleges and universities. The Consortium for Environmental Educa-

tion in Medicine (<http://www.ceem.org>) is working with medical schools to help physicians understand the relationship of health and the environment and utilize this knowledge in their practice and in public advocacy. Second Nature (<http://www.secondnature.org>) works with colleges and universities to create systemic change so that Education for Sustainability becomes a cornerstone of learning, research, operations and community interaction. Second Nature has worked with nearly 100 universities and has a content-rich website of educational materials available to all universities. These organizations have formed an Alliance for Sustainability through Higher Education to expand the scope and effectiveness of the Education for Sustainability (EFS) movement.

Conclusion

It is difficult to imagine the individual and social changes needed for creating a sustainable future occurring without the higher education community committing to modeling sustainability. Reforming higher education according to the characteristics envisioned above is a demanding agenda, yet one which is urgently needed. And, one which is possible.

As we focus on strategies for education reform we must remember that a sustainable relationship with our life support system is the sine qua non of a successful effort.

—Anthony D. Cortese, ScD, 1999

Editor's note:

This writing is derived from a number of presentations, speeches and writings by Dr. Cortese.

References

- 1 Strategies to transform higher education are outlined in detail in a 1995 report to the United States President's Council on Sustainable Development entitled "The Essex Report: Workshop on the Principles of Sustainability in Higher Education." The workshop included thirty-five international academic experts on sustainability and education.
- 2 McDonough, William. Dean of Architecture, University of Virginia.
- 3 Keniry, Julian. *Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century*. National Wildlife Federation, Washington, DC, 1995, p.xii
- 4 Eagan, David J., et. al. *Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses*. National Wildlife Federation, Washington, DC, 1998, p. 5.
- 5 Second Nature's [EFS Profiles Database](http://www.secondnature.org/programs/profiles.nsf), <http://www.secondnature.org/programs/profiles.nsf>



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