
Ecology and Education: David Orr Visits Dartmouth

by Timothy Lesle '01

In recent months some of the most talked-about issues facing society relate to the environment. From the Kyoto Climate Accords to the Bush administration's call for a new power plant to be built each week for the next 25 years, issues of conservation of electricity, wildlife, clean air and water have taken center stage.

Many of the policy positions that the U.S. government has adopted are the results of weighing environmental sustainability against economic security, cases of green versus green in which the dollar usually dominates. A problem with viewing the situation this way comes in light of the possibility that we may not have to separate economics from environment. The two, in fact, work hand in hand, and society need not use the economy as a starting point against which all choices are measured. If anything, the bottom line can be the health of the environment.

That, in large part, is the message that David W. Orr is trying to spread. Orr, the head of the Environmental Studies Program at Oberlin College, is not only pushing for a widespread environmental consciousness, but proposes to bring about this change through education. His work and ideas, especially those detailed in his 1994 book, *Earth in Mind*, have made him a major figure in education and environmentalism.

Professor Orr came to Dartmouth College on April 21 to deliver the Keynote Address at the 2001 Senior Symposium. Orr described his reasons for an ecological approach to education and some of the ways he is working on making that a reality. Plain spoken, yet ineffably eloquent, Orr, who received his Ph.D. in political science, strikes one as a true voice of reason.

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Some people believe that government will spearhead the efforts to integrate environmental thought with action. Others think that business will lead the way by incorporating

such ecological thought into their corporate mantras. Orr sees education as the only feasible way to instill "ecological literacy" in society.

Education can teach one of two things: that we are a part of the environment, or apart from it. In most cases, education is missing the element of ecological literacy; we don't understand how we relate to the environment. Could we link the biological dead zone near the mouth of the Mississippi River, once one of the most valuable fishing and shrimping, with the increasing rates of obesity in American youths? It can be done, he says. And within that, one will find patterns and connections between ecology, industry, health, spending habits, and any number of other subjects, that we simply overlook. They are all part of the systems view that Orr believes we need to learn and integrate into our society, in order to thoroughly deal with all of our environmental, and social, problems.

The problem with contemporary education, he says, is that there is a disorder in thought, which leads to a disorder in development. Academia is separated into disparate pieces, and there simply are not enough people actively putting these pieces together. Toward a solution to this, Orr advocates what he calls a "lateral flow of knowledge." This flow is not just between the sciences, but extends into areas of social science such as public health, legislation, and economics.

Many of Orr's ideas on the purpose and methods of education are geared toward this view of the entire system. For example, an economist

measuring agricultural costs should include the natural and human consequences of production, such as the loss of arable topsoil. If the presence of topsoil is key to further crop production, then the health of any piece of land is necessary for an accurate cost calculation. Simply factoring in equipment and maintenance costs is not enough. Orr calls it economic sustainability; the scale is limited by environmental capacities. What we find with this perspective, Orr says, is that a



Earth in Mind. David Orr in the Lewis Center for Environmental Studies at Oberlin College.

Oberlin Office of College Relations.

purely market-based economy, from source to sink, is operating at 2 to 3 percent efficiency, at best. The situation demands a serious re-evaluation of the way that society functions.

Furthermore, in order to understand and calculate the cost of topsoil loss, the economist should feel comfortable understanding principles of soil science and biogeochemistry. Academia needs to overcome its traditional disciplinary barriers and blind drive toward specialization in order to promote the systems view and, ultimately, instill a sense of ecological literacy.

When asked how people react to his ideas on education or the environment, Orr says, "You don't always get a positive response." Getting people to listen and understand requires striking a balance. "The thing you don't want to do is polarize something where you have people on opposite ground," says Orr. "You want to find everything you don't have a problem with, everything where you've got common ground. Then, isolate those things where there are differences and understand what is driving them. That, I think, is just a smart process for coming to grips with dialogue. Dana [Meadows] was one of the best people, if not the best person in the country, to help me to understand how you work through complicated paradigm differences."

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With this perspective, Orr has been making strides in a number of directions. Just the day before coming to Dartmouth, he gave three talks at NASA's Glenn Research Center. "NASA was involved with our building [the Adam Joseph Lewis Center for Environmental Studies], and they're involved with two or three other projects that we're working on right now... We've worked with NASA people on development of fuel-energy technologies and our 2020 Project, our climate-neutral study."

In addition, Orr has been invited to work with the Center for Disease Control on the environment's impact on public health. "What I want to do," says Orr, "is to encourage them to think about health in that larger sense of the word, as a system concept. And the health and integrity of the largest system is the predominant thing. Within that is the health of the component systems, and us as organisms."

The Adam Joseph Lewis Center for

Environmental Studies is another example of Orr's ideas at work. In partnership with green architect William McDonough and environmental designer John Todd, Orr designed a building that is considered a model of sustainability. It takes advantage of natural light, is heated by geothermal wells, and makes use of recycled materials and wood harvested from sustainable forests.

The Lewis Center also possesses a natural wastewater treatment system, called the Living Machine, that makes use of plants, algae, bacteria, and snails and fish to purify up to 2,000 gallons of water a day. It is a remarkable teaching resource, and though it may act as a template for further green building, Orr looks forward to future improvements. He says it only taps a fraction of the potential for green building, likening it to the Wright Brothers' flight at Kitty Hawk—it's just the beginning.

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Using systems thinking and calling for the adjustment of economics to promote sustainability have become popular approaches, but they are not taking hold across the board. Much of that seems to be the result of preconceptions, or partisan slants, regarding ecology's place in relations to other issues. As Orr says, "The unfortunate thing now is that a lot of issues are politicized." He goes on to say that "there are a number of issues now where science is really badly garbled and the water gets muddy... I think the public is badly served."

Often, the subjects of environment and economy are presented in opposition. The paradox, in this case, is that this opposing relationship is not necessarily valid within a whole-system perspective.

So how can society change to understand this? We are, Orr says, "spindly-legged, big-brained creatures living on a planet in some backwater galaxy." We shouldn't take ourselves too seriously, nor should we forget that we are part of a bigger system. In many ways, these are ideas that we, as a society, will have to grow into. If Orr has his way, by reaching young people through education, we can raise entire generations of ecologically literate adults. ■

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