

What Is Education For?

Six myths about the foundations of modern education,
and six new principles to replace them
by David Orr

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We are accustomed to thinking of learning as good in and of itself. But as environmental educator David Orr reminds us, our education up till now has in some ways created a monster. This essay is adapted from his commencement address to the graduating class of 1990 at Arkansas College. It prompted many in our office to wonder why such speeches are made at the end, rather than the beginning, of the collegiate experience.

David Orr is the founder of the Meadowcreek Project, an environmental education center in Fox, AR, and is currently on the faculty of Oberlin College in Ohio. Reprinted from Ocean Arks International's excellent quarterly tabloid Annals of Earth, Vol. VIII, No. 2, 1990. Subscriptions \$10/year from 10 Shanks Pond Road, Falmouth, MA 02540.

If today is a typical day on planet Earth, we will lose 116 square miles of rainforest, or about an acre a second. We will lose another 72 square miles to encroaching deserts, as a result of human mismanagement and overpopulation. We will lose 40 to 100 species, and no one knows whether the number is 40 or 100. Today the human population will increase by 250,000. And today we will add 2,700 tons of chlorofluorocarbons to the atmosphere and 15 million tons of carbon. Tonight the Earth will be a little hotter, its waters more acidic, and the fabric of life more threadbare.

The truth is that many things on which your future health and prosperity depend are in dire jeopardy: climate stability, the resilience and productivity of natural systems, the beauty of the natural world, and biological diversity.

It is worth noting that this is not the work of ignorant people. It is, rather, largely the result of work by people with BAs, BSs, LLBs, MBAs, and PhDs. Elie Wiesel made a similar point to the Global Forum in Moscow last winter when he said that the designers and perpetrators of the Holocaust were the heirs of Kant and Goethe. In most respects the Germans were the best educated people on Earth, but their education did not serve as an adequate barrier to barbarity. What was wrong with their education? In Wiesel's words: "It emphasized theories instead of values, concepts rather than human beings, abstraction rather than consciousness, answers instead of questions, ideology and efficiency rather than conscience."

The same could be said of the way our education has prepared us to think about the natural world. It is a matter of no small consequence that the only people who have lived sustainably on the planet for any length of time could not read, or, like the Amish, do not make a fetish of reading. My point is simply that education is no guarantee of decency, prudence, or wisdom. More of the same kind of education will only compound our problems. This is not an argument for ignorance, but rather a statement that the worth of education must now be measured against the standards of decency and human survival - the issues now looming so large before us in the decade of the 1990s and beyond. It is not education that will save us, but education of a certain kind.

SANE MEANS, MAD ENDS

What went wrong with contemporary culture and with education? There is some insight in literature: Christopher Marlowe's Faust, who trades his soul for knowledge and power; Mary Shelley's Dr. Frankenstein, who refuses to take responsibility for his creation; Herman Melville's Captain Ahab, who says "All my means are sane, my motive and object mad." In these characters we encounter the essence of the modern drive to dominate nature.

Historically, Francis Bacon's proposed union between knowledge and power foreshadows the contemporary alliance between government, business, and knowledge that has wrought so much mischief. Galileo's separation of the intellect foreshadows the dominance of the analytical mind over that part given to creativity, humor, and wholeness. And in Descartes' epistemology, one finds the roots of the radical separation of self and object. Together these three laid the foundations for modern education, foundations now enshrined in myths we have come to accept without question. Let me suggest six.

First, there is the myth that *ignorance is a solvable problem*. Ignorance is *not* a solvable problem, but rather an inescapable part of the human condition. The advance of knowledge always carries with it the advance of some form of ignorance. In 1930, after Thomas Midgely Jr. discovered CFCs, what had previously been a piece of trivial ignorance became a critical, life-threatening gap in the human understanding of the biosphere. No one thought to ask "what does this substance do to what?" until the early 1970s, and by 1990 CFCs had created a general thinning of the ozone layer worldwide. With the discovery of CFCs knowledge increased; but like the circumference of an expanding circle, ignorance grew as well.

A second myth is that *with enough knowledge and technology we can manage planet Earth*. "Managing the planet" has a nice a ring to it. It appeals to our fascination with digital readouts, computers, buttons and dials. But the complexity of Earth and its life systems can never be safely managed. The ecology of the top inch of topsoil is still largely unknown, as is its relationship to the larger systems of the biosphere.

What might be managed is *us*: human desires, economies, politics, and communities. But our attention is caught by those things that avoid the hard choices implied by politics, morality, ethics, and common sense. It makes far better sense to reshape ourselves to fit a finite planet than to attempt to reshape the planet to fit our infinite wants.

A third myth is that *knowledge is increasing and by implication human goodness*. There is an information explosion going on, by which I mean a rapid increase of data, words, and paper. But this explosion should not be taken for an increase in knowledge and wisdom, which cannot so easily be measured. What can be said truthfully is that some knowledge is increasing while other kinds of knowledge are being lost. David Ehrenfeld has pointed out that biology departments no longer hire faculty in such areas as systematics, taxonomy, or ornithology. In other words, important knowledge is being lost because of the recent overemphasis on molecular biology and genetic engineering, which are more lucrative, but not more important, areas of inquiry. We still lack the science of land health that Aldo Leopold called for half a century ago.

It is not just knowledge in certain areas that we're losing, but vernacular knowledge as well, by which I mean the knowledge that people have of their places. In the words of Barry Lopez:

"[I am] forced to the realization that something strange, if not dangerous, is afoot. Year by year the number of people with firsthand experience in the land dwindles. Rural populations continue to shift to the cities.... In the wake of this loss of personal and local knowledge, the knowledge from which a real geography is derived, the knowledge on which a country must ultimately stand, has come something hard to define but I think sinister and unsettling."

In the confusion of data with knowledge is a deeper mistake that learning will make us better people. But learning, as Loren Eiseley once said, is endless and "In itself it will never make us ethical [people]." Ultimately, it may be the knowledge of the good that is most threatened by all of our other advances. All things considered, it is possible that we are becoming more ignorant of the things we must know to live well and sustainably on the Earth.

A fourth myth of higher education is that *we can adequately restore that which we have dismantled*. In the modern curriculum we have fragmented the world into bits and pieces called disciplines and subdisciplines. As a result, after 12 or 16 or 20 years of education, most students graduate without any broad integrated sense of the unity of things. The consequences for their personhood and for the planet are large. For example, we routinely produce economists who lack the most rudimentary knowledge of ecology. This explains why our national accounting systems do not subtract the

costs of biotic impoverishment, soil erosion, poisons in the air or water, and resource depletion from gross national product. We add the price of the sale of a bushel of wheat to GNP while forgetting to subtract the three bushels of topsoil lost in its production. As a result of incomplete education, we've fooled ourselves into thinking that we are much richer than we are.

Fifth, there is a myth that *the purpose of education is that of giving you the means for upward mobility and success*. Thomas Merton once identified this as the "mass production of people literally unfit for anything except to take part in an elaborate and completely artificial charade." When asked to write about his own success, Merton responded by saying that "if it so happened that I had once written a best seller, this was a pure accident, due to inattention and naiveté, and I would take very good care never to do the same again." His advice to students was to "be anything you like, be madmen, drunks, and bastards of every shape and form, but at all costs avoid one thing: success."

The plain fact is that the planet does not need more "successful" people. But it does desperately need more peacemakers, healers, restorers, storytellers, and lovers of every shape and form. It needs people who live well in their places. It needs people of moral courage willing to join the fight to make the world habitable and humane. And these needs have little to do with success as our culture has defined it.

Finally, there is a myth that *our culture represents the pinnacle of human achievement*: we alone are modern, technological, and developed. This, of course, represents cultural arrogance of the worst sort, and a gross misreading of history and anthropology. Recently this view has taken the form that we won the cold war and that the triumph of capitalism over communism is complete. Communism failed because it produced too little at too high a cost. But capitalism has also failed because it produces too much, shares too little, also at too high a cost to our children and grandchildren. Communism failed as an ascetic morality. Capitalism failed because it destroys morality altogether. This is not the happy world that any number of feckless advertisers and politicians describe. We have built a world of sybaritic wealth for a few and Calcuttan poverty for a growing underclass. At its worst it is a world of crack on the streets, insensate violence, anomie, and the most desperate kind of poverty. The fact is that we live in a disintegrating culture. In the words of Ron Miller, editor of *Holistic Review*:

"Our culture does not nourish that which is best or noblest in the human spirit. It does not cultivate vision, imagination, or aesthetic or spiritual sensitivity. It does not encourage gentleness, generosity, caring, or compassion. Increasingly in the late 20th Century, the economic-technocratic-statist worldview has become a monstrous destroyer of what is loving and life-affirming in the human soul."

WHAT EDUCATION MUST BE FOR

Measured against the agenda of human survival, how might we rethink education? Let me suggest six principles.

First, *all education is environmental education*. By what is included or excluded we teach students that they are part of or apart from the natural world. To teach economics, for example, without reference to the laws of thermodynamics or those of ecology is to teach a fundamentally important ecological lesson: that physics and ecology have nothing to do with the economy. That just happens to be dead wrong. The same is true throughout all of the curriculum.

A second principle comes from the Greek concept of *paideia*. *The goal of education is not mastery of subject matter, but of one's person*. Subject matter is simply the tool. Much as one would use a hammer and chisel to carve a block of marble, one uses ideas and knowledge to forge one's own personhood. For the most part we labor under a confusion of ends and means, thinking that the goal of education is to stuff all kinds of facts, techniques, methods, and information into the student's mind, regardless of how and with what effect it will be used. The Greeks knew better.

Third, I would like to propose that *knowledge carries with it the responsibility to see that it is well used in the world*. The results of a great deal of contemporary research bear resemblance to those foreshadowed by Mary Shelley: monsters of technology and its byproducts for which no one takes responsibility or is even expected to take responsibility. Whose responsibility is Love Canal? Chernobyl? Ozone depletion? The Valdez oil spill? Each of these tragedies were possible because of knowledge created for which no one was ultimately responsible. This may finally come to be seen for what I think it is: a problem of scale. Knowledge of how to do vast and risky things has far outrun our ability to use it responsibly. Some of it cannot be used responsibly, which is to say safely and to consistently good purposes.

Fourth, *we cannot say that we know something until we understand the effects of this knowledge on real people and their communities*. I grew up near Youngstown, Ohio, which was largely destroyed by corporate decisions to "disinvest" in the economy of the region. In this case MBAs, educated in the tools of leveraged buyouts, tax breaks, and capital mobility have done what no invading army could do: they destroyed an American city with total impunity on behalf of something called the "bottom line." But the bottom line for society includes other costs, those of unemployment, crime, higher divorce rates, alcoholism, child abuse, lost savings, and wrecked lives. In this instance what was taught in the business schools and economics departments did not include the value of good communities or the human costs of a narrow destructive economic rationality that valued efficiency and economic abstractions above people and community.

My fifth principle follows and is drawn from William Blake. It has to do with *the importance of "minute particulars" and the power of examples over words*. Students hear about global responsibility while being educated in institutions that often invest their financial weight in the most irresponsible things. The lessons being taught are those of hypocrisy and ultimately despair. Students learn, without anyone ever saying it, that they are helpless to overcome the frightening gap between ideals and reality. What is desperately needed are faculty and administrators who provide role models of integrity, care, thoughtfulness, and institutions that are capable of embodying ideals wholly and completely in all of their operations.

Finally, I would like to propose that *the way learning occurs is as important as the content of particular courses*. Process is important for learning. Courses taught as lecture courses tend to induce passivity. Indoor classes create the illusion that learning only occurs inside four walls isolated from what students call without apparent irony the "real world." Dissecting frogs in biology classes teaches lessons about nature that no one would verbally profess. Campus architecture is crystallized pedagogy that often reinforces passivity, monologue, domination, and artificiality. My point is simply that students are being taught in various and subtle ways beyond the content of courses.

AN ASSIGNMENT FOR THE CAMPUS

If education is to be measured against the standard of sustainability, what can be done? I would like to make four proposals. First, I would like to propose that you engage in a campus-wide dialogue about the way you conduct your business as educators. Does four years here make your graduates better planetary citizens or does it make them, in Wendell Berry's words, "itinerant professional vandals"? Does this college contribute to the development of a sustainable regional economy or, in the name of efficiency, to the processes of destruction?

My second suggestion is to examine resource flows on this campus: food, energy, water, materials, and waste. Faculty and students should together study the wells, mines, farms, feedlots, and forests that supply the campus as well as the dumps where you send your waste. Collectively, begin a process of finding ways to shift the buying power of this institution to support better alternatives that do less environmental damage, lower carbon dioxide emissions, reduce use of toxic substances, promote energy efficiency and the use of solar energy, help to build a sustainable regional economy, cut long-term costs, and provide an example to other institutions. The results of these studies should be woven into the curriculum as interdisciplinary courses, seminars, lectures, and research. No student should graduate without understanding how to analyze resource flows and without the opportunity to participate in the creation of real solutions to real problems.

Third, reexamine how your endowment works. Is it invested according to the Valdez principles? Is it invested in companies doing responsible things that the world needs?

Can some part of it be invested locally to help leverage energy efficiency and the evolution of a sustainable economy throughout the region?

Finally, I propose that you set a goal of ecological literacy for all of your students. No student should graduate from this or any other educational institution without a basic comprehension of:

- * the laws of thermodynamics
- * the basic principles of ecology
- * carrying capacity
- * energetics
- * least-cost, end-use analysis
- * how to live well in a place
- * limits of technology
- * appropriate scale
- * sustainable agriculture and forestry
- * steady-state economics
- * environmental ethics

Do graduates of this college, in Aldo Leopold's words, know that "they are only cogs in an ecological mechanism such that, if they will work with that mechanism, their mental wealth and material wealth can expand indefinitely (and) if they refuse to work with it, it will ultimately grind them to dust." Leopold asked: "If education does not teach us these things, then what is education for?"