

# Critical Education

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## *Ecologically and Culturally Informed Educational Reforms in Teacher Education and Curriculum Studies*

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An excerpt from *Educational Reforms for the 21<sup>st</sup> Century: How to Introduce Ecologically Sustainable Reforms in Teacher Education and Curriculum Studies*, Eco-Justice Press, 2011. ISBN 0-9660370-3-0

### **Abstract**

*As people across the country are now experiencing the extreme weather conditions predicted in scientific reports, it is now time for teacher education and curriculum studies faculty to begin introducing reforms that enable classroom teachers to recognize when students are being socialized to take for granted ecologically unsustainable patterns of thinking. In addition to the toxic chemicals introduced by our consumer-dependent lifestyle, there is another major change that is altering the life prospects of students that also needs to be addressed in reforming teacher education and curriculum studies. That is, the long-standing tradition of replacing workers and their craft knowledge with machines has now reached a new stage of development where computer-driven production processes, as well as the outsourcing of work to the low-wage regions of the world, are now eliminating the need for workers who perform routine tasks in offices and on factory floors. Life-time employment and traditional careers, according to recent studies in the United States and Europe, will only be available for the small class of highly educated individuals. Work for the rest of the population will be low paying and characterized by continual uncertainty. This book, from which this excerpt is drawn, suggests how teacher education and curriculum studies programs can begin to address both of these life-altering changes.*



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Educational reforms that contribute to making the transition to an ecologically sustainable culture face daunting challenges from competing economic and ideological interests. It should be no surprise that environmental education, which many currently view as having the major responsibility for dealing with issues of long-term sustainability, is increasingly at the center of today's major controversies. The limited role that environmental education can play in fostering the deep cultural changes that will be required is even further undermined by one of the scientific underpinnings of environmental education, which includes introducing students to the theory of evolution. With nearly fifty percent of adults in the United States, according to one recent survey, thinking that the theory of "intelligent design" should be taught alongside the theory of evolution, many biology teachers who also introduce environmental issues into their courses face even more controversy. In addition, there are other forces that contribute to the continued marginalization of environmental education. These include the increasing number of required professional courses in teacher education programs, the lack of environmental education professors in education departments who can promote the importance of environmental education as more than yet another elective course, a general fear of science which is being magnified by the near McCarthy-type atmosphere created by the proponents of "intelligent design," and the long-standing tradition of viewing environmental education as primarily the responsibility of the science teacher, who often has other teaching responsibilities.

There is another reason for the marginalized status of educating for an ecologically sustainable future that is often overlooked. That is, the majority of the public still views the changes occurring in the environment as affecting other regions of the world, but unrelated to their own lives—that is, if they are even aware of global warming, the depletion of the world's fisheries, the increasing shortage of potable water, and the loss of species and habitats. There is also a large segment of the American public that supports politicians who favor free markets, economic globalization, and who take pride in the fact that they do not read newspapers that are critical of the growing influence of corporations in shaping governmental policies, and that are likely to publish articles on global warming and other environmental changes. Many other Americans hold the assumption that the experts in the scientific and technology communities will overcome the disruptive effects of environmental changes. The assumption that "science and technology will save us" contributes to the malaise that characterizes the public's attitude toward not allowing environmental concerns to interfere with their consumer-dependent lifestyles.

The political reality is that if the general public, rather than a small minority, were to make the self-renewing capacity of natural systems their main priority, as well as the need to address the cultural roots of the ecological crisis, we would see pressure being brought on public schools and universities to make educating for an ecologically sustainable future the responsibility of all classroom teachers and university professors. This possibility is reduced by the cycle we seem unable to alter: namely that the marginalized status of environmental education in public schools and in universities, as well as the indifference shown by the majority of non-science oriented classroom teachers and university professors toward addressing the cultural roots of the ecological crisis, contributes to the marginalized status, if not outright denial, in the consciousness of the public—even among the most highly educated segment of the public. This state of consciousness, in turn, ensures that there is little public support for promoting reforms that go beyond the current search for new carbon and energy-reducing technologies, for recycling what would otherwise end up in the landfills, and supporting the new trend of promoting healthy diets through community and school gardens.

The current segregation of courses in which environmental education is viewed as the exclusive responsibility of the biology teacher, or of a separate university department, may have its roots in a deeper linguistic problem. That is, “environment” is the key metaphor that frames the area of inquiry, with the result that what is outside of this frame becomes in most public schools and universities yet another area of silence that extends beyond the edges of conscious awareness. The environment metaphor also serves to designate which public school teachers and university professors have responsibility for environmental education—though some universities now have a faculty member or two in the areas of literature, history, sociology, economics, philosophy, and religion who are integrating environmental issues into their research and courses. But there are other problems with the “environment” metaphor.

The word “environment” has a history and thus carries forward over many generations the meaning derived from the analogy that prevailed over others that were perceived at that time as a less adequate way of understanding. In many of these historically rooted ways of thinking, the word environment was understood as needing to be brought under human control, as an economic resource to be exploited, as separate from culture, and as an external phenomenon that can be objectively observed and judged. More recently, a small segment of the public now recognizes it as fragile and capable of collapse, and as part of a moral and spiritual universe that places upon humans an ethic of self-limitation for the sake of other species and future human generations. This list of varied and conflicting meanings suggests yet another reason for the lack of consensus on the importance of educational reforms that are ecologically sustainable. A strong case, however, can be made that the way of thinking of the environment as separate from culture is the most problematic, as it allows for the cultural practices and ways of thinking that degrade the environment to go unchallenged. What is often overlooked is that identifying the industrial source of toxins released into the environment is very different from examining the taken for granted cultural assumptions and practices that are ecologically unsustainable.

As public school and university professors continue to perpetuate the linguistic and thus conceptually based separation of environment from culture, students not only have it reinforced in the classroom but also in their everyday interactions in the larger society. Indeed, thinking of the environment as something that is separate, external, and the object of individual observation is as pervasive in mainstream America as the equally misconceptualized use of the personal pronoun “I”—as in the way we often begin a verbal sentence with “I think,” “I see,” “I want,” and so forth. This cultural pattern of thinking, which reinforces the misconception that separates the environment from the observer, makes the meaning of the environment, as well as its value, contingent upon the judgment of the individual who too often reproduces the misconceptions of earlier generations. Unfortunately, this pattern of thinking is reinforced in environmental curriculum materials, and by both school teachers and university professors.

The multiple ways of understanding the meaning of the environment, as well as the increasing politicization of the achievements of science, are likely to prevent the consensus that needs to be attained within different segments of society on the importance of understanding the nature of the environmental changes that the world is now undergoing. And without this understanding, the general public will continue to lack a reference point for assessing whether their ideas, values, and lifestyle are part of the problem or part of the solution. A possible way out of this problem is to find a word or phrase that does not lend itself to the multiple and often conflicting ways of understanding what the “environment” stands for. A second goal would be to find the word or phrase that represents the many forms of interdependencies and exploitation that characterize the world’s cultures and ecosystems.

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The Internet creates the illusion of a connected world. But it is largely one characterized chiefly by exchanging personal and business-oriented messages in ways that ignore the effects of human behaviors on local cultural and environmental contexts. Even the intercontinental military systems that direct where and what supposed terrorist group is to be bombed fail to take account of the consequences that ripple outward through the local and international communities—and the natural systems that are seldom considered.

The phrase that best serves as the conceptual and moral framework for thinking about educational reforms that address the key issues in this increasingly interconnected, complex, and strife-torn world is eco-justice. I introduced this phrase in the book, *Educating for Eco-Justice and Community* (2001), but it was only in subsequent articles that the five guiding principles were clearly articulated. World events over the last ten years now make the following principles even more relevant.

1. Eliminating the global practices that are exposing humans, animals, and plants to the genetically altering and thus health destroying chemicals that are viewed as the cutting edge of scientific progress by the \$600 billion chemical industry.
2. Transitioning away from the western patterns of hyper-consumerism that lead to exploiting the resources and people in other regions of the world.
3. Revitalizing the cultural commons; that is, the non-monetized intergenerational practices, skills, and relationships that enable people to be less dependent upon consumerism and that have a smaller adverse environmental impact. Also, retaining the ability to think critically about which aspects of the cultural commons need to be reformed or changed entirely, and understanding the many ways in which the cultural commons are being enclosed—that is, being integrated into a money economy.
4. As stated in the writings of Vandana Shiva, recognizing and protecting the ecological traditions of earth democracy—that is, the right of other species to participate in the web of life—and not to be reduced to an exploitable resource.
5. Leaving future generations with ecologically sustainable cultural ways of thinking and practices, thus ensuring that their life chances have not been diminished.

Classroom teachers and university professors do not have the political and economic power to challenge directly the global agenda of the military/corporate/religious alliances that are aggressively promoting a consumer-dependent lifestyle and winning converts in countries where political expediency dictates emulating the Western model of development. But teachers and professors can discuss the political, economic, and technological developments with students in the hope that it will raise awareness and thus the need for them to become more active in the political process—one that seems now to be heavily tilted to the advantage of corporations in exercising even more control over the federal and state governments.

Given the slippery political slope we are now on, and the increasing perils that await classroom teachers who deviate from the test-driven curriculum and the market liberal and libertarian ideologies promoted by members of local school boards, it is still possible to introduce reforms that focus on educating students about the local alternatives to a consumer-dependent lifestyle—which is, to reiterate a key point, the lifestyle that requires exploiting the earth's natural systems and the economic colonization of other cultures. It is also the lifestyle that is dependent upon an industrial culture that is being radically transformed by information technologies. The Internet now enables corporations to ship jobs overseas to low-wage regions of the world, while

computer-driven automation enables corporations to replace workers with machines that can run twenty-four hours a day, and do not require health insurance and other human costs. In effect, the consumer-dependent lifestyle that was based upon the assumption of lifetime employment is now only a possibility for the people who are highly educated, and for people who will perform the low-paying, low-status work that cannot be automated. The drive to further automate all levels of work, from the conceptual to the manual, means that everybody's economic future is now insecure and dependent upon corporate policies for maximizing their profits. Professors have a great many more opportunities to raise questions, to address the cultural roots of the ecological and cultural crises, and to introduce students to alternative lifestyles that are less dependent upon consumerism—if they chose to do so. But this may also change, as the less expensive online courses begin to have the same impact on universities that online news has had on the country's traditional newspapers.

The metaphor that best encompasses the cultural practices that support a change in lifestyle that is less dependent upon consumerism and is thus less ecologically damaging refers to the ancient traditions based on the mindful participation in the local cultural and environmental commons. Most of the literature on the commons refers to the different ways in which cultures have understood and managed the environmental commons. The aspect of the commons less well understood, but part of daily life in all cultures, are the cultural commons. It is this part of the commons that should be the main focus of classroom teachers and university professors. If students become explicitly aware of the ecological and community importance of the cultural commons, and the personal benefits from becoming more fully involved, the adverse effects on the environmental commons will be correspondingly reduced. From here on, the discussion of educational reforms will focus on the cultural commons, which is the aspect of an eco-justice agenda in which educational reforms can have the greatest influence.

### **Using the More Inclusive Metaphor of the Cultural Commons**

In spite of the difficulty of changing our guiding metaphors, the importance of introducing students to the lifestyle changes that come from participating in the revitalization of the cultural commons now makes it even more imperative that educators drop the phrase “environmental education,” and begin to using the phrase “commons education”— or “educating for the commons.” Not only does the word “commons” overcome the conceptual separation of culture from the environment, it also expresses the built in tension between what is shared in common and the forces that are working to transform what remains of the non-monetized aspects of community relationships and activities, as well as the natural systems, into market opportunities. The use of the commons also reconnects education with the mainstream of human history. Even before the word “commons” came into existence, humans understood that everyone in the community had equal access to the plants, animals, forests, streams, etc., as well the language, stories, expressive arts, and knowledge that were the basis for making and using different technologies. That is, access to what is now being referred to as the cultural and environmental commons had not been monetized in these earliest cultures. With the development of different cultural beliefs and practices, status systems emerged that excluded some groups from accessing the environmental commons, as well as from the empowering and status-conferring aspects of the cultural commons. Preventing some groups from becoming literate was an example of restricting access to the cultural commons, and it had the effect of creating an under-class that could be exploited by the class that could participate fully in the cultural commons. And later still, private ownership further restricted access to the environmental commons, and even to aspects of the cultural commons. The

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private ownership of ideas, technologies, and artistic expression—as well as anything that is now put on the Internet—are examples of the latter.

With the expansion of a money economy, both the cultural and environmental commons became reduced. The consequence was that many cultural and environmental resources that previously were freely available to the members of the community (regulated in many instances by the group's status system) now have to be paid for. Race, gender, inherited status, slavery, poverty, and lack of education, and so forth, have historically influenced which aspects of the culture's commons were freely available to all members of the community and which were restricted. However, the critical distinction was and continues to be between what is shared in common and what has been enclosed—that is, what has become privately owned and integrated into a money economy that creates a new basis for exclusion and the poverty that follows.

Today, the process of enclosure is spreading without either moral or ideological constraints. Examples range from the transformation of the tradition of work as returned to the monetization of work, from the difference between learning the intergenerational skills necessary to prepare a meal from locally grown vegetables and purchasing an industrially prepared meal, and from the difference between a mentoring relationship and paying tuition or a fee in order to have access to a body of knowledge or a skill. Although some social groups still retain these traditions, the modern idea of development equates progress with bringing what remains of the cultural and environmental commons under the control of the market forces that have been made even more destructive by the expansion of global competition.

In order to understand the role that public schools and universities can play in restoring a better balance between what remains of the world's diverse cultural and environmental commons, and the colonizing nature of the industrial, consumer-centered lifestyle, we should undertake the broader challenge of educating for the cultural and environmental commons in place of the more narrowly focused environmental education. The phrase “environmental education,” especially when approached from a scientific perspective, fails to take account of the interdependencies that exist between the local culture and local environment, as well as the ways in which the high-status forms of knowledge underlying mainstream Western culture continue to undermine the viability of both the cultural and environmental commons.

Traditional approaches to environmental education focus on such important issues as forest ecology, preservation of wetlands, and local plant and animal diversity, while the symbolic (that is, cultural) basis of environmentally destructive practices is largely ignored. This silence, which can partly be attributed to the limits of scientific knowledge, ensures that environmental problems will continue to proliferate. The major weakness of the traditional scientific approach to environmental education is that it does not address the systemic reasons that the rate of environmental degradation has reached a level that now exceeds what science and technology can reverse. Restoring habitats that allow some species to recover from the brink of extinction pales in significance when we consider the changes taking place in the chemistry of the world's oceans and the rate of global warming. Because of the scale and rate of environmental changes, there is a special need for the restoration of the environmental commons at all levels—and this includes strengthening the cultural practices and beliefs that have a smaller ecological footprint.

The phrase “educating for the cultural and environmental commons” is somewhat awkward, and it certainly exceeds what modern technology allows in terms of course abbreviations. However, as long as the shorter phrase “commons education” is understood as

encompassing both the non-monetized aspects of the cultural and environmental commons, it should be used in place of “environmental education.”

An equally strong case can be made for substituting “commons education” for the phrase “liberal education.” If we take account of the deep cultural assumptions that are promoted in the various courses traditionally associated with a liberal education, we find that they are many of the same assumptions that underlie the industrial, consumer-dependent culture that is exploiting the environment and undermining what remains of the cultural commons.

Critics of this generalization need to consider why the majority of professors in the liberal arts are still silent about the nature of the environmental crisis, and why the importance of maintaining the diversity of the world’s cultural commons either is viewed as left-wing extremism or entirely unrecognized. As will be discussed later, substituting “commons education” for “liberal education” shifts the focus from the simplistic yet ideologically driven Enlightenment idea of liberation from past ways of thinking as the primary goal of education. The focus of commons education involves learning to discriminate between the forms of intergenerational knowledge that are ecologically sustainable and contribute to morally coherent communities and the intergenerational knowledge (of which the ethnocentrism of liberal education is an example) that contributes to the colonization of other cultures and to the development of technologies and an economic system that are overshooting what the environment can sustain. What is generally overlooked is that a liberal education is based on culturally specific assumptions about achieving greater individual autonomy, progress, and the use of a rational process that is supposedly free of cultural influences in gaining greater control over nature. These assumptions are noteworthy for their lack of attention to the need for an environmental ethic.

On a more strategic level, recognizing that all approaches to education affect the viability of the cultural and environmental commons eliminates the current way in which non-science teachers and faculty can rationalize that their areas of academic competence are unrelated to global warming and to the degradation of other vital environmental systems. When the main focus is on the changes occurring in the environmental commons, science teachers should also be able to help students understand how the enclosure of the cultural commons contributes to these changes. When the main focus is on the cultural commons, which would be the case in the social sciences and humanities, how enclosure of the cultural commons influences the natural environment also needs to be considered. In effect, educational reforms must overcome the artificial separations within the institutionalized bodies of knowledge that now contribute to the ignorance of so many graduates of public schools and universities about how their values and beliefs are contributing to the enclosure of the commons.

The commons, by its very nature, requires a radically different way of thinking from what now characterizes a modern form of consciousness. Indeed, it requires understanding aspects of culture that largely have been ignored because of the prejudices and silences reproduced in the language and thought processes we associate with being modern and progressive. In some areas of culture, the prejudices carried forward in the metaphorically based language/thought process that each generation within the dominant culture is socialized to accept at a taken for granted level have become especially destructive. In addition to the silences, the prejudices make certain ways of understanding appear reactionary and thus out-of-bounds for a socially responsible and politically correct person. If teachers and professors are to provide an approach to commons education that helps to restore a sustainable balance between dependence upon the market and the non-monetized activities that make up the cultural commons, they need to rethink these prejudices, as well as begin to consider what has been ignored because of the silences in their own education.

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The latter is especially difficult, as it is like learning to think and communicate without possessing the necessary vocabulary. Other groups focused on achieving social justice for themselves and others have proven that it can be done.

In effect, a central message of the book is that the worldwide spread of poverty and the rate of global warming now make it imperative that educational reforms be directed toward strengthening the non-monetized aspects of the world's diverse commons. These reforms should also be focused on developing the students' communicative competence that is necessary for democratic decision making at the local level. Extremist market liberal politicians and religious fundamentalists have largely made a mockery of democracy at both the local and national levels. Unfortunately, their influence has not been diminished. The seemingly unlimited funding they receive from corporations and wealthy extremists has made them even more committed to carrying us further down the slippery slope leading to an authoritarian future that will be made even more severe as the environmental crisis leads to greater scarcity. Resistance to this trend can only come as people at the community level become serious about conserving the traditions that have contributed to socially just and mutually supportive alternatives to consumerism. The educational challenge is to enable students to become aware of what needs to be conserved and what needs to be reformed or changed entirely.

In the following discussion of the cultural commons, it needs to be kept in mind that revitalizing the cultural commons does not lead to what in the West is called "socialism." It also needs to be kept in mind that participating in the cultural commons does not require that individuals give up personal possessions, pursue only community-sanctioned activities, avoid exercising critical thinking and engaging in debate, or submit to constant surveillance by the moral and political guardians of the community. If we give close attention to activities and relationships of the cultural commons in most of our communities, we find that individual expression, personal ownership and pursuit of interests, as well as the development of talents become part of the community network of support. The sources of injustice, including what minority groups experience, can also be understood as expressions of a community's and ethnic group's cultural commons—which should alert us to avoid romanticizing all aspects of the cultural commons. Formulaic thinking and abstract judgments have no place in assessing the characteristics of the local cultural commons.

The above introduction to the tensions between the cultural commons and the modern forces that strive to integrate them into a money economy reflects my previous efforts to bring to the attention of educational reformers that there are alternatives that exist in every community to the consumer dependent lifestyle that are under the twin threats from automation and the outsourcing of work, and from the deepening ecological crisis caused by the exploitation of the environment and the toxic wastes that are reducing its capacity to renew itself. Even when the cultural commons are understood from this perspective, few environmental educators and scientists are prepared to introduce students to the critical issues—particularly the issues related to the history and current nature of the technological and ideological forces that underlie the process of turning what remains of the cultural and environmental commons into new commodities and markets by corporations.

A central task here is to explain how cultural commons issues, particularly the tension between what is shared in common largely outside of monetized relationships and the forces that promote private ownership and turning the commons into new markets, can serve as the basic conceptual framework for understanding how all areas of the public school and university curricula can be reframed so every classroom teacher and university professor, regardless of

subject area, recognizes that what they teach contributes either to strengthening the cultural commons or to undermining them by their silences and by reinforcing the deep cultural assumptions underlying market-oriented thinking. Every aspect of schooling, ranging from the earliest grades to graduate-level classes, may also contribute to the cultural amnesia and subjective relativism characteristic of modern individualism that is such a powerful political source of resistance to taking seriously the ecological crisis. In short, the entire curricula have implications for whether or not the cultural roots of the ecological crisis are being addressed. All educators, and not just environmental and science educators, are complicit; and their complicity is grounded in their use of the metaphorical language systems of the culture—with some of the cultural language systems, such as computer-mediated thought and communication, contributing to the enclosure of the cultural commons and thus to accelerating the degradation of the environment.

One of the purposes of this book is to reach a specific audience; namely, professors of education who are chiefly responsible for the professional education of classroom teachers who introduce the next generations to the most basic conceptual categories and deep cultural assumptions—many of which are so widely taken for granted that they will not be made explicit and examined at later stages in the students' education. Nor are they likely to be examined by other sources of socialization such as the family, the workplace, the military, the media, or the athletic venues. The theoretical framework that is being introduced in the following chapters is intended to make explicit the key curricular and pedagogical guidelines that will change the dynamics of socializing students to the double-bind patterns of thinking that have been dominant since the Enlightenment thinkers provided the conceptual and moral frameworks that led to the Industrial Revolution. This conceptual framework should not only be viewed as an essential part of the professional education of classroom teachers, but also part of graduate education of university professors. The special challenges faced by university professors are discussed in a book on the reform of higher education.

While the effort here will focus on the most basic concepts, it should be kept in mind that the cultural and environmental commons can be traced back to the earliest beginnings of the world's cultures. That is, every culture, beginning with the hunter/gather forefathers and mothers, developed mythopoetic accounts of origins and basic moral guidelines, narratives that highlighted their understanding of the human condition and models of behavior that were to be emulated or avoided, knowledge of food and how to prepare and share it, various forms of artistic expression, uses of technology, ceremonies that marked important life-changing events, knowledge of the cycles of renewal in the environment, even knowledge of astronomy that guided their layout of communities and important buildings.

Many of the cultures, in their earliest stages of development, survived only because they learned to exercise ecological intelligence—that is, the ability to observe carefully the patterns that connect within the cultural and environmental commons—and to pass this knowledge on to the following generations who were not taught, as is the case with some emancipatory educators today, to question everything and to construct their own knowledge. Status systems emerged, different groups were allowed access to only part of the cultural commons, the notion of individual and family ownership emerged, along with systems of literacy and then abstract thinking, followed by context-free theories of how society and different activities such as the economy should be organized, and so forth. The important point is that the process of enclosure was part of the earliest human experience, and was expressed differently in each culture.

While most forms of enclosure have excluded people, restricted personal freedoms, and contributed to poverty, other forms of enclosure represent real gains in the areas of social and eco-

justice. To cite one example, the enclosure of traditional practices of exclusion and exploitation, such as the tradition that accepted the absolute authority of the English king, led eventually to the language and institutional safeguards of our civil liberties. More recently, the enclosure of racist and sexist traditions of the cultural commons intergenerationally passed along in many communities in the United States have led to a more just society. In any discussion of enclosure, it is important to remember that in some contexts enclosure creates limitations and impoverishes, while in other situations it may free the community of morally unjust practices that have been handed down over many generations.

The curricular issues that classroom teachers and university professors need to address include how to reframe their traditional approaches to socializing students to the part of the culture on which their courses focus. This reframing should lead to making explicit the tensions between what is shared in common that has a smaller ecological footprint, and the market-dictated forces that are based on the long-held cultural assumptions that can be traced back to the abstract theories of earlier philosophers and social theorists whose ideas are still being promoted in universities. As the Industrial Revolution would not have been possible without the achievements of scientists and engineers, there is now a need to focus on how these two highly esteemed groups have contributed to the enclosure of different traditions of intergenerational knowledge and skill that enabled people to live less consumer-dependent lives. In being constantly reminded of the genuine achievements of scientists, there is a tendency to ignore their role in turning all aspects of daily life into consumer products and services, in introducing new chemicals that are now altering the DNA and thus reproductive capacity of plants and animals, and to creating on behalf of corporations and the government the surveillance systems that move us closer to becoming a police state. These contributions of the sciences and various fields of technology, as well as the role of the liberal arts in promoting an anthropocentric and colonizing world-view, have largely been relegated to the realm of silence.

These issues are beyond what most classroom teachers can bring to the attention of their students without serious misrepresentations, which will only add to the controversy that the current state of friend/enemy politics feeds upon. They are mentioned here to make the larger point: namely, that introducing students to the diversity of the world's cultural commons and the traditional, as well as new scientific and market-based forms of enclosure, will require curricular reforms in many areas of the university that have been immune from critical examination. In short, education faculty cannot do it alone. Nevertheless, they need to start reading beyond their traditional quoting circles, and thus to encounter the rethinking that the environmental/cultural crises is leading others to undertake. But this is where the double bind arises, especially if the majority of university faculty continue to be in denial about the ecological crisis, and continue to support the traditions of thinking in the West that have been major contributors to relying upon science, technology, and the market to maintain the illusion of plenitude and a world of continuing progress.

Faculty in colleges of education need to take on the challenge of re-orienting their approaches to teacher education, curriculum and educational studies (and even school administration) in ways that address how to enable students to understand the necessity of learning to live within an eco-justice conceptual and moral framework. The basic conceptual framework is laid out in the following chapters. This conceptual framework will help bring to awareness the skills and patterns of mutual support that exist in every community. Most important of all, as teachers learn to observe the patterns that connect within the different areas of the cultural commons, as well as the different forces that are undermining them, they will be able to engage

students in ways that are profoundly different from curricula based on the print and thus abstract-based mentality of the experts who produce today's curriculum materials. The message being sent by changes in the life-sustaining ecosystems is that reform in teacher education must begin now—even in the face of the corporate and market liberal take-over of public schools.

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