

**Transitions: Educational Reforms that Promote Ecological Intelligence
or the Assumptions Underlying Modernity?**

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2008

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Introduction:

This collection of essays addresses a world that it is in a state of rapid transition—both in terms of cultural practices and in the viability of the natural systems that all life depends upon. Even though there have been earlier periods of rapid transition in cultural ways of knowing and values, this is the first that involves an awareness that the changes taking place in the Earth’s natural systems are putting the future of humankind in jeopardy. These changes are occurring at an increasing rate. More than a few scientists are finding evidence that we may be entering a new era of mass extinction. Even if this prediction seems too alarmist, the changes occurring in natural systems are already impacting people’s lives. Throughout the world, fisheries are no longer reliable sources of protein, potable water is in increasingly short supply, agricultural land is turning into deserts, weather systems are becoming more extreme and changing in ways that make habitation less predictable, and the chemistry of the world’s oceans is changing in ways that threaten the food chain in fundamental and irreversible ways.

The transitions in the viability of natural systems are now beginning to attract the attention of politicians, religious leaders, educators, and activists in Third World cultures. Reversing the forces that are deepening the cultural and ecological crises will require more than the adoption of energy efficient and less carbon producing technologies, and more than the efforts of some citizens to recycle what would otherwise end up in the local landfill. Unfortunately, even these efforts are limited to a small minority of Americans. The majority of American politicians, religious leaders, and educators continue to base their lives on the myth of unending progress and the incessant drive to achieve as much material wealth as possible. That is, they continue to take for granted the cultural assumptions that continue to give conceptual direction and moral legitimacy to the individualistic, consumer-dependent lifestyle that is overshooting the sustaining capacity of natural systems.

This mind-set leads to the constant repetition of the word “progress” –progress in science, in technology, in education, in new consumer markets, and in self-discovery. As “progress” serves as the talisman of modern individuals, it makes it unnecessary for them to explore the nature of ecological thinking and why it is needed. This failure leads to ignoring that today’s scientists have transformed the early Greek understanding of oikos into “ecology” which now stands for how natural systems are to be understood. The ancient understanding of ecology was more inclusive. Their understanding of managing the household recognized the inescapable reality that daily life is

nested in cultural systems and cultural systems are nested in natural systems. Reviving this more inclusive understanding led Gregory Bateson to urge us to recognize what the myth of unending progress denies: namely, that cultural systems cannot survive the destruction of the natural systems they depend upon.

It is difficult to predict whether Americans will awaken to need for a rapid transition in their unsustainable cultural traditions, which will require replacing the myths and assumptions upon which the industrial/consumer-dependent culture is based with an ecological form of intelligence. The desire for conveniences and material success may prove too powerful, and the uncertainties of how to engage in ecological thinking too daunting—especially when most Americans remain unaware of how the vocabulary they rely upon carries forward the misconceptions and assumptions of earlier thinkers who dealt with the environmental limits of their day by exploiting the bioregions of other cultures. Instead of relying upon the myth of progress, we now need to recognize that “liminality” is the word that best describes where we are in the process of cultural and environmental transition: that is, the uncertainties that surround our efforts to find technological solutions to slowing the rate of global warming. Liminality can also be understood as referring to the unpredictable changes that may occur in our guiding democratic political ideology as demagogues seek to exploit the ecological crises for their own interests. Some cultural groups are already attempting to escape the uncertainties of the present by seeking to return to what are taken to be the certainties of the distant past and of the humanly created narratives that have been given sacred status. Others are attempting to revitalize the wisdom traditions of how to live in more community-centered and thus less environmentally disruptive ways. If the economic system does not totally collapse, still others will continue their hyper-consumer lifestyle and remain oblivious to the environmental consequences that their children will be unable to escape. Given the scientific evidence that global warming and the melting of glaciers are not being reversed, that the rising levels of acidification in the world’s oceans have peaked and are now in decline, that the world’ fisheries are now recovering, there seems to be only one certainty that should be taken seriously. Namely, the certainty that cultures cannot survive the destruction of the ecosystems they depend upon. This is the certainty that Jared Diamond documents in his recent book, [Collapse: How Societies Choose to Fail or Succeed](#).

The essays in this online book include previous efforts on my part to raise questions about the well intentioned thinkers who were genuinely concerned about environmental issues as well as

the future prospects of human kind, but who relied upon many of the cultural assumptions that now underlie the process of economic and cultural globalization. Several of my more recent essays represent an attempt to translate different elements of an ecological form of intelligence that are often overlooked by those who have adopted a reductionist interpretation of ecology. The writings of Edmund Burke, Edward Shils, Gregory Bateson, Wendell Berry, Vandana Shiva, and Third World activists in Peru and Bolivia have been especially influential in recognizing the multi-dimensionality of an ecological form of intelligence.

A number of the essays in this collection have appeared earlier in small journals at a time when the majority of educational reform proposals were focused on social justice rather than environmental issues, and when environmentalists were largely indifferent to the need to promote radical reforms in public schools and universities. Now that there is a growing awareness that educational and environmental issues are related, the re-publication of these essays may contribute to the recognition of how leading thinkers in different fields of inquiry are still caught in the double bind of relying upon ecologically destructive and culturally colonizing assumptions to frame their analysis of what they understand to be the major problems we now face—and their solutions to them. In effect, by focusing on the ideas of E. O. Wilson, George Lakoff, Mark Johnson, and John Dewey, as well as a number of educational reformers, it is hoped that readers will ask their own questions about these and other proponents of progress. It is also hoped that these essays will contribute to greater awareness of the differences between various expressions of ecological intelligence and the expression of the mind-set responsible for our current predicament of overshooting the sustaining capacity of the Earth's natural systems.

As several of the essays were written for audiences unfamiliar with the essays that appeared in small non-educational journals, it has been necessary to introduce for these different audiences the basic issues and conceptual framework that may now appear as repetitious to some readers of this collection. I hope readers will overlook this problem as an inevitable result of trying to introduce a similar message to different audiences. Despite this problem, each of the essays brings new issues and non-mainstream interpretations into focus. And each essay represents my first efforts to develop an ecological pattern of thinking that requires overcoming the artificial separations into different conceptual categories, such as separating traditions from progress, individualism from culturally mediated experiences, culture from the environment, the cultural commons from achieving social justice in a consumer-dependent lifestyle, and the impact of the Western consumer dependent

lifestyle from the impact on Third World cultures. What are often understood from a non-ecological perspective as unrelated issues must now be understood as requiring analyses and solutions that represent them as part of a common, interdependent world.

Chapter 1 Conceptual Steps to Ecologically Sustainable Educational Reforms

The environmental and social problems we face have increasingly ominous implications for the future. In addition to global warming, the amount of carbon dioxide released into the atmosphere is changing the chemistry of the world's oceans—which further threatens the food chain we depend upon. The shortage of potable water and loss of top-soil, which are just two of many environmental changes taking place, will further add to the misery of an increasing world population. The social problems are equally daunting—especially in America where a combination of market-liberal and Christian fundamentalism has become the dominant political force. Computer-driven automation, outsourcing of jobs to low-wage regions of the world, and the disappearance of the economic safety nets that many workers previously took-for-granted, are reducing the ability of many people to meet their basic needs. At the same time the local cultural and environmental commons are rapidly being exploited as new markets by the industrial system of production and consumption. What few people recognize is that the commons, which include community-based mutual support systems as well as the intergenerational knowledge, reduce dependence upon a money-based existence. The increased use of surveillance technologies, the undermining of democratic institutions and civil safeguards, and the rise of a friend/enemy approach to politics at the local and national level, add to the list of daunting challenges faced by environmentalists, social justice advocates, and educational reformers.

One of the reasons for the environmental and political crises we now face is the market liberalism that gave conceptual and moral legitimacy to the global expansion of the industrial/consumer-dependent lifestyle. Market liberalism is now the principal source of indoctrinating people into believing that the main pathway of human history is now a source of backwardness and a limitation on individual freedom. This pathway, which varies from culture to culture, is better known as the cultural and environmental commons. Most examples of the cultural and environmental commons encompass those aspects of daily life that had not yet been privatized

and monetized. Another feature of the commons, as practiced in many cultures, is the reliance upon local decision making and an awareness that current practices should not diminish the prospects of future generations.

As I will explain in future essays, public schools and universities in the West have relegated knowledge of the cultural and environmental commons to low status by omitting it from the curriculum. The result is that many people lack the language for naming those aspects of the commons they participate in. In not being able to identify what they depend upon and experience at a taken-for-granted level of awareness, they are unable to resist the further enclosure of the commons that makes them more dependent upon consumerism. I shall also examine the nature of the linguistic double binds that lead current educational reformers to promote, in the name of individual freedom, the further emancipation from the commons sustaining intergenerational knowledge and mutual support systems. How the cultural assumptions reinforced by American professors in many disciplines contribute to large numbers of university graduates becoming die-hard supporters of President George W. Bush's market liberal domestic and foreign policies will also be examined. Perhaps the most difficult challenge will be to convince professors across the disciplines to take seriously reforms that contribute to the revitalization of the local cultural and environmental commons, and to learn how to build support within the community for living less monetized and environmentally destructive lives.

Revitalizing the Cultural and Environmental Commons as Sites of Resistance to Economic Globalization

In order to understand the criticisms I am making of our educational institutions, as well as recommendations for reform, it is necessary to clarify further the nature of the cultural and environmental commons—as well as the many ways they are being enclosed. I will also explain their importance to reducing the human impact on natural systems, and how participation in the cultural commons reduces dependence upon a money economy.

The key features of the cultural and environmental commons that need to be identified if we are to counter the criticism that “we cannot go back to a simpler past” and “any discussion of the commons is the expression of romantic and wishful thinking” include the following: (1) the cultural and environmental commons began with the beginning of human history; (2) they still exist in all of the world's cultures—including both rural and urban areas in the West; (3) access to the cultural commons varies with the culture's status systems and other forms of exclusion and privilege; (4) the

cultural and environmental commons in many cultures were (and still are) managed through local democracy; (5) the first acts of enclosure of the commons can be traced to introduction of private property, a money-based economy, socially stratifying religious beliefs, and, more recently, to a variety of cultural forces that range from public education, the nexus of science and technology, and the globalization of market liberal ideology.

The environmental commons, which are now being heavily impacted (enclosed) by the West's industrial culture, includes the soil, water, plants, animals, air, forests, oceans, rocks, gene lines, and so forth. Even the microorganisms being destroyed by pesticides (which is a form of enclosure) are part of the environmental commons. The enclosure of the different aspects of the environmental commons, that is, transforming what was freely available to all to what requires participating in a money economy, can be seen in such recent developments as the corporate ownership of aquifers, the patenting of gene lines, and the privatizing of public lands and minerals.

The cultural commons are difficult to recognize, as our participation in them is largely part of the taken for granted experience of everyday life. Awareness of their loss too often occurs after they have been enclosed --when it is too late to resist. For example, individual privacy was part of our taken for granted commons until we learned in the media that surveillance technologies are being used by the government and corporations. Examples of the cultural commons that still exist include the languaging processes that are learned when born into a culture. As the moral templates of the culture are encoded in the language they become part of the taken for granted commons—until they are challenged as wrongly constituted or enclosed by market-oriented values. In addition to the languaging processes, which include the spoken and written word, narratives, patterns of metacommunication, and the creative arts, the cultural commons also includes the intergenerational knowledge and skills related to the growing, preparation, and sharing of a meal, craft knowledge, healing practices, games, knowledge of how to greet a guest, civic traditions of rights and responsibilities—among others. In other words, the cultural commons includes all the non-monetized and non-privately owned knowledge, skills, and forms of relationships that are intergenerationally passed along. While there are many examples of the cultural commons that strengthen community interdependence and have a smaller ecological impact, there also are examples of the cultural commons that are unjust, based on ignorance, and that further degrade the natural systems that life depends upon.

Enclosure may be driven by an ideology, such as market liberalism which has as its goal the transformation of what remains of the cultural and environmental commons into markets. Enclosure may also take other forms—ranging from the use of seeds genetically engineered to resist the use of Round Up, and which encloses a wide range of the farmer’s knowledge of local planting conditions, to the many forms of enclosure that result from relying upon computer mediated thinking and communication. Some forms of enclosure represent genuine contributions to improving the quality of daily life, while many others, such as the World Trade Organization’s legal right to override (enclose) local decision making about a variety of health, work, and environmental issues, undermine further the self-sufficiency of the community. Enclosure can also result from the loss of the collective memory of the community. When schools and universities fail to introduce students to the stories of the religious wars in Europe that led the framers of the American Constitution to provide for the separation of church and state, and when the stories of the labor, feminist, and civil rights movements are no longer part of the curriculum, these silences leave students without the language and historical perspective necessary for recognizing how the social justice gains of the past are currently being undermined.

Revitalizing the local cultural commons will not in itself reverse economic globalization. It may, however, contribute to slowing the process of environmental degradation and dependence upon a money economy that is failing millions of peoples around the world. As students become aware of the nature and importance of the cultural and environmental commons, as well as the different forms of dependencies that result from the enclosure of what was previously freely available, perhaps they will become more critically aware of what needs to be conserved and what needs to be reformed or changed entirely.

Participation in the cultural commons--from preparing a meal from a traditional recipe, learning to play an instrument, writing poetry, using local materials and craft skills in constructing a building, to organizing local resistance to the forces enclosing their civil rights-- fosters a values-based educational experience. When students go beyond classroom learning about the local cultural commons as well as their cultural diversity, including the different forms of enclosure, to participating in mentoring relationships they are discovering and developing personal interests and talents. They are also learning to be more self-confident in skill areas, to be mutually supportive of others, and to support the patterns of moral reciprocity within the community.

How Universities Contribute to the Enclosure of the Cultural and Environmental Commons

The same double bind that characterizes Enlightenment values and modern development is also present in Western universities. Universities are the source of many genuine achievements that have improved the quality of people's lives. However, when we weigh some of the achievements against the backdrop of global warming and recent changes in the chemistry of the oceans, as well as the ethnocentrism of Western foreign policies and the globalization of an industrial/consumer-dependent lifestyle, we are likely to wonder whether many of these achievements have put our collective future in greater jeopardy. The double bind of how some forms of success can have destructive consequences can be seen, especially in the United States, in how so many university graduates move from the classroom to becoming supporters of the market liberal domestic and foreign policy agenda of President George W. Bush.

At a later time, I will explain how the market liberal orientation of American students who mistakenly refer to themselves as conservatives is reinforced by the silences in their education, as well as by their social justice-oriented professors who share many of the same cultural assumptions that gave conceptual direction and moral legitimacy to the industrial culture that has entered its digital phase of development. But here I will focus on how the distinction between high and low status forms of knowledge (with the latter being largely left out of the university curriculum) contributes to the enclosure of what remains of the cultural and environmental commons. Several key points made in the previous discussion of the cultural and environmental commons include: communities that sustain their cultural and environmental commons rely upon the intergenerational renewal of knowledge, skills and relationships that reduce dependence upon participating in the money economy; participation in the commons often involves local decision making that takes account of the prospects of future generations, as well as social and ecojustice issues; a vital cultural and environmental commons reduces dependence upon the industrial/consumer oriented lifestyle that is contributing to global warming. Because not all cultural commons are free of oppressive relationships, the traditions of our civil liberties and critical reflection need to be renewed.

Today it is difficult to identify any aspect of the cultural commons that is entirely free of dependence upon a money economy, or any aspect of the market system that is entirely free of traditions that are part of the cultural commons. The differences are marked by degree of emphasis and dependence. This also holds for universities. Yet the case can be made that most of what is now learned in university classrooms contributes to the expansion of the market forces that are further enclosing what remains of the local cultural and environmental commons—as well as integrating what remains of the

commons of other cultures into the global economy. The evidence can be found in what universities have designated as high status knowledge—and in the prejudices and silences reinforced in philosophy, political science, and economics classes, as well as in such professional courses as business and education.,

High status knowledge is based on a number of cultural assumptions that go largely unexamined in most university classrooms. They include: (1) that the individual is the basic social unit, and thus source of ideas and values; (2) that change is a progressive force and thus is to be promoted; (3) that this is an anthropocentric world and the environment is an economic resource; (4) that print and other abstract systems of representation are more reliable than oral traditions; (5) that science represents the highest and most useful approach to knowledge; (6) that language is a conduit in a sender/receiver process of communication that enables “objective” facts and information to be sent to others; (7) that technology is both culturally neutral and the expression of progress; (8) that competition in the market place, on the playing field, and among academics separates the winners from the losers; and (9) that Western forms of knowledge and values are the most culturally advanced.

These assumptions are seldom made explicit and discussed in classes. Rather, they are reinforced as part of the interpretative frameworks that are taken for granted. Thus, they contribute to the silence that surrounds low status forms of knowledge and relationships—which in turn leave students without the language that will enable them to recognize and renew the cultural practices that strengthen the non-monetized traditions of community that have a smaller adverse ecological impact. One of the chief sources of the silence about the nature and importance of the local commons, as well as their cultural diversity, can be traced to the ethnocentrism that frames what is learned in many disciplines. If this ethnocentrism were not present, students might learn that the Western ideal of becoming an autonomous individual is based on a number of myths that have been carried forward in the metaphorical language taken-for-granted by the community. They might also learn that many cultures think of the individual in terms of intergenerational relationships and interdependencies—as well as being dependent upon the life sustaining ecosystems. Learning about the diversity of the cultural and environmental commons, including the non-monetized traditions within their own communities, would provide an awareness of the extent they rely upon intergenerational knowledge—such as the growing and preparation of food, the creative arts, craft knowledge, built environments, and the language of social and ecojustice. If students lack the language necessary for making explicit how they rely upon different aspects of the cultural and environmental commons they will be less able to recognize and resist the different forms of enclosure by

a market system that has no self-limiting guidelines. That is, they will be less able to recognize the transition from the mutual support systems within the community that are ecologically sustainable to becoming more dependent upon a money economy that is the basis of the industrial/consumer culture now threatening the sustaining capacity of natural systems.

Students need to develop a more balanced understanding of the importance of face-to-face communication, as well as the role that narratives play in passing on stories of injustices as well as advances in moral relationships. This might enable them to recognize how the increasing reliance on computers contributes to enclosing more of the cultural commons. Mapping the cultural and environmental commons of their local communities is also likely to contribute to a more complex understanding, even appreciation, of intergenerational traditions that lead to the development of personal interests and talents—as well as an enhanced sense of meaning and purpose that comes from the mutual support activities within the community. Through the experience of mentoring relationships, they may discover a different form of wealth than what is required in consumer relationships.

In effect, the double bind of promoting high status knowledge that supports the further expansion of the industrial/consumer dependent culture, while leaving students largely uninformed about how the commons represent alternatives to dependence upon a consumer lifestyle that is ecologically destructive, has another consequence that needs to be emphasized. Namely, local democracy as well as our civil liberties, which are essential characteristics of the cultural commons in the West, are being enclosed by university graduates who have turned the assumptions underlying high-status knowledge into a rigid ideology—which they mistakenly identify as conservatism.

Rethinking the Deep Conceptual Foundations of Educational Reform

As land conservancy groups, environmental scientists and other activists are already working to conserve what remains of the environmental commons the following short essays will identify the misconceptions that currently underlie the modernizing and ecologically unsustainable agenda of public schools and universities that are undermining the cultural commons.

Currently, there are four main approaches to pre-university education. These include home schooling, nationally mandated programs that integrate test-based educational “outcomes” with the supposed needs of the workplace in a global economy, classrooms where teachers promote the idea that students should construct their own knowledge (computer mediated learning is seen as facilitating this approach), and teachers who simply reproduce the way in which they were taught. At the university level, there are individual faculty in different departments who are addressing

environmental issues; but the majority continue to teach and write as though global warming is not occurring. As a number of observers have noted, if there is a direction to the reform of higher education it is the closer integration between research and the interests of the corporate world. A criticism that can be made even of environmentally oriented faculty is that there is little evidence that the university's role in promoting the high-status knowledge that underlies the continued expansion of the industrial/consumer culture has changed—or even been seriously questioned. Ironically, the forms of knowledge left out of the curriculum, and thus relegated to low-status, happens to be what sustains the cultural commons that have a smaller adverse impact on natural systems.

The basic question that educational reformers need to ask is: If an increase in the level of consumerism is not a viable approach to slowing global warming, and if a combination of the present consumer dependent lifestyle and greater reliance on more efficient sources of energy and recycling in the home is not an adequate response, then what are the alternatives that will have a smaller environmental impact? I have suggested that revitalizing the cultural commons is the only alternative that reduces the level of consumerism and thus dependence on a money economy that is increasingly unreliable, and is destructive of human potential and of natural systems.

Educational reforms that reduce dependence upon an economic system driven by the market liberal ideology that has a global agenda will require more than simply adding ecological sustainability to the social justice liberal's long list of priorities. As I have pointed out in several books and articles, both the market liberals (who out of ignorance identify themselves as conservatives) and social justice liberals share many of the same deep cultural assumptions that the industrial/consumer culture is based upon. Thus, it is necessary to recognize that ecologically sustainable educational reforms both at the public school and university level will require fundamental changes in long held patterns of thinking, including the deep taken-for-granted cultural assumptions they are based upon.

Changes in these patterns of thinking will be difficult because the personal identities and the careers of classroom teachers and professors are based upon them. That these cultural assumptions are largely taken-for-granted makes them an even greater impediment to change. What needs to be addressed are the silences and prejudices currently reinforced in school and university classrooms. These include the ethnocentrism that is still present in the current emphasis on multicultural education and the combination of silences and prejudices that contribute to the indifference that

most students exhibit toward ecologically sustainable practices within their local communities. This indifference toward environmental issues is partly a result of their being captives of media sponsored hyper-consumerism and the ability of technological innovations to provide instant self-gratification

Any serious approach to reforming education in ways that lead to lifestyles and communities that reduce our ecological footprint, as well as address social/ecojustice issues, must begin with questioning such key concepts as tradition, individualism, progress, liberalism, conservatism, and a human-centered world. Understanding the historical misconceptions reproduced in how these concepts are currently understood and used, as well as understanding the implications of such new concepts as ecology and evolution are critical to whether we can change the Titanic mind-set that is currently on a collision course with global warming and the other degraded systems we depend upon.

The starting place for aligning our guiding concepts (which need to be understood as metaphors within an historically layered system of root and iconic metaphors) is to recognize the misconceptions about the nature of language still perpetuated in both schools and universities. The primary misconception is that language is a conduit in a sender/receiver process of communication. This view of language is essential to sustaining other myths, such as the widely held idea that the rational process is uninfluenced by the assumptions of the culture, that there is such a thing as “objective” knowledge and data (as though knowledge and data at different points in their origin do not begin with culturally influenced human observation and interpretation), and that the individual has the potential (if given the right education) of becoming an autonomous thinker and moral agent. The conduit view of language also contributes to the lack of awareness that such words as tradition, individualism, progress, democracy, data, etc. have a history and that their current meaning has been framed by culturally specific root metaphors—or to use a technical phrase, the meta-cognitive schema that operates largely at the unconscious level thinking. An example of how a schema (or interpretative framework) is reproduced in the languaging processes of a culture can be seen in how such supposedly cutting edge thinkers as Richard Dawkins and E. O. Wilson rely upon the same mechanistic model of thinking articulated centuries ago by Newton and Kepler. Other examples include how the mythopoetic narrative in the Book of Genesis continues to be the basis of thinking of a human-centered world and, until recently among segments of society, as justifying male domination.

In the next essay I will discuss the layered nature of metaphorical thinking that both illuminates and hides aspects of human experience, as well as how language carries forward the moral templates of the culture. In order to connect this discussion with the argument I am making for educational reforms that help revitalize the local commons as well as their cultural diversity, I will focus the discussion of how metaphorical thinking often carries forward the misconceptions of the past—and that the misconceptions that characterize the current understanding of individualism, tradition, progress, liberalism, conservatism, and evolution (at least its extension to include cultural memes) contribute to the current silences and prejudices that inhibit the students' ability to recognize the sustainable characteristics of the cultural and environmental commons.

What Al Gore Missed: The Ecological Importance of the Cultural Commons

The recommendations for reducing consumerism that appear at the end of Al Gore's book, An Inconvenient Truth, represent how language may contribute to enclosing the cultural commons. No one can deny that Gore's list of behaviors for reducing consumerism is sound common sense. But a list of what thoughtful people are already doing, such as buying things that last, composting, buying local, and bagging groceries in a reusable tote bag, is no substitute for suggesting a more radical approach to reducing our dependence upon the consumerism that is contributing to global warming—which his book documents so well.

Gore does not mention the diversity of the world's cultural commons, and how the intergenerational knowledge, skills, and mentoring relationships that are the basis of many of these commons represent community-centered alternatives to being dependent upon industrial food, entertainment, agricultural practices, healing, and other aspects of daily life that have been monetized. Gore's silence about the ecological importance of the cultural commons should not be taken as a sign of his disagreement with this pre and post-industrial pathway of human history. A more plausible explanation is that his formal education failed to provide the language necessary for making explicit the local cultural commons-based experiences that are largely taken-for-granted. As most people reading his list of consumer-reducing recommendations are likely to be unaware of the importance of the cultural commons he overlooks, the question arises about the culpability of our public schools and universities. If the educational process does not provide students with the language necessary for naming and thus making explicit the cultural commons they will otherwise take-for-granted, they will be less likely to recognize when different aspects of the commons have

been enclosed by market forces, and by a government moving closer to equating resistance to the market liberal agenda of economic globalization with terrorism.

The formal education of most Americans has left them in the double bind where participation in the daily practices and relationships of their local cultural commons have been relegated to the area of conceptual silence, while the language that is reinforced in public schools and universities is the language of the market place, technological innovation, expert systems, and media hype. Evidence of how widespread the public's inability to name the different aspects of the cultural commons, and to explain why they are important in terms of the narratives that are often (but not always) sources of moral guidance, traditions of civil liberties, and skills and mutual supportive relationships that are alternatives to consumerism can be found by asking classroom teachers and most university professors what they understand about the nature of the cultural commons. I have found that most of them respond with blank stares to any attempt to discuss the cultural commons. A few books are now being written about the importance of the environmental commons, as well as many articles that examine how different cultures are managing what remains of their environmental commons. This renewed interest in the commons has not influenced what is being taught in public schools and universities, as they are still in the grip of linguistic traditions that were either silent about the cultural commons—or were prejudiced toward them. To take the cultural commons seriously is to identify with what universities continue to designate as low-status and as the source of superstition and backwardness.

As pointed out in a previous essay, the metaphorical nature of language carries forward over many generations the analogs that prevailed at an earlier time of metaphorical thinking of how to understand something new. An example is the way in which E. O. Wilson and Richard Dawkins continue to reproduce in their writings the misconceptions of Newton and Kepler who assumed wrongly that all aspects of life could be understood as having the same properties as a machine. Few professors and even fewer classroom teachers understand how the metaphorical nature of the language they rely upon carries forward the misconceptions of the past. Unfortunately, many of these misconceptions are responsible for the silences and prejudices that characterize many people's relationships with their local cultural commons. In recent months we have witnessed important aspects of the cultural commons, such as the traditions of habeas corpus and the right to privacy, being enclosed with little or no reaction from the general public. Narratives of social justice struggles, as well as ethnic traditions related to the sharing of food and mutual support, are also

being enclosed by the increasing reliance on technologically mediated communication and entertainment (e.g. cell phones, iPods, computer gaming, etc.).

If we examine the ideas, silences, and prejudices of influential thinkers in the West, such as Plato, Descartes, Locke, Smith, Spencer, and more recent philosophers, we find that they viewed local knowledge as a source of backwardness. They shared a prejudice that marginalized the knowledge systems of other cultures—which also reduced the possibility that we would understand the ecological importance of their cultural commons. What Plato, Descartes, and Locke reinforced is that there is nothing to be learned from traditions; and they, along with Smith, Spencer and recent philosophers such as Richard Rorty, reinforced the idea that words have universal meanings—quite separate from their cultural context. In effect, these early philosophers and political theorists elevated the use of abstract language over the vernacular languages built up over generations of place-based experiences. This legacy of abstract language and thinking is now used to justify the enclosure of the cultural commons around the world. This abstract language includes such words as individualism, private property, free markets, critical inquiry, progress, competition—which is the vocabulary of market liberalism. This liberal vocabulary is based on cultural assumptions still reinforced in most university courses. What this vocabulary marginalizes are the words essential to understanding the nature and importance of the cultural commons as representing alternatives to economic globalization. This alternative vocabulary includes a more culturally informed understanding of tradition, conserving an intergenerationally connected form of individualism, non-monetized activities and patterns of mutual support, moral reciprocity between the human and non-human world. It is, in essence, the vocabulary of connectedness and interdependency that is basic to how we participate in our local cultural and environmental commons.

Another way in which the language reinforced in our educational institutions contributes to the silence found in Gore's list of recommendations is that, contrary to the conduit view of language, the languaging systems of a culture reproduce its moral templates. Thus, learning the language of the culture also involves acquiring the moral templates shared by other members of the culture.

Languaging processes are about how relationships should be understood and morally conducted. Key to this process is how words encode what is understood by members of the culture about the attributes of the participants in the relationships. To make this as simple as possible, if the word “woman” is understood as not having the attributes of intelligence and strength, then the moral code of the culture allows treating women as inferior to men. If the words “weed”, “wilderness”, and

“desert” are understood as lacking positive attributes, then it is morally sound to eradicate the weed, exploit the wilderness, and to use the desert as a toxic waste site. The fate of the cultural commons has similarly been influenced by the moral templates reproduced in the high-status vocabulary reinforced in our educational institutions. If the phrase “cultural commons” has no discernable positive attributes, then it has no moral standing—and attention will be focused on the language that identifies the many manifestations of material progress—even though this form of progress is undermining the ecosystems that we and future generations rely upon. Gore’s oversight must not be viewed as his failure to learn from his professors; his failure is in taking them too seriously and in reproducing their silences.

The next essay will focus on how the educational uses of computers contribute to undermining the cultural commons, as well as the ability of teachers/professors to help students acquire the communicative competence necessary for resisting the forms of enclosure that lead to further degrading the environment and for reforming the traditions of the cultural commons that are sources of injustice.

How Public Schools and Universities Can Contribute to Reducing Consumerism

Earlier essays discussed the nature of the cultural and environmental commons as well as how universities establish what constitutes high-status knowledge—while at the same time relegating to low-status the face-to-face, intergenerational and largely non-monetized knowledge and relationships that are part of every local cultural commons. The many environmentally oriented courses now offered in most universities also deserve comment before I suggest the direction that educational reform needs to take if it is to rectify the silences in Al Gore’s thinking about how to reduce consumerism. Most departments in universities now offer environmentally oriented courses where students may study the history of environmental thought, eco-criticism, environmental ethics, environmental sociology, religion and ecology, and so forth. These courses, as important as they are, share a common limitation; namely, they are taught within the conceptual framework of the professor’s academic discipline.

A major limitation of this approach is that none of the academic disciplines have made the cultural commons the main focus of study. That is, few if any focus on how people can live less consumer dependent lives, and how conserving the world’s diversity of cultural commons is essential to living in a sustainable relationship with the natural systems. There is a similar lack of focus on the different forms of enclosure that range from the introduction of new technologies, modernizing ideologies, to religious fundamentalism. The promotion of high-status knowledge, with its emphasis on reinforcing the same

cultural assumptions that gave conceptual direction and moral legitimacy to the industrial revolution that is now being globalized, has resulted in universities being major contributors to the environmental crises. Unfortunately, many of the professors who are addressing environmental issues within the conceptual framework of their discipline still promote these deep, taken-for-granted cultural assumptions about individualism, the progressive nature of change, the ethnocentrism implicit in their view of the rational process and critical inquiry as the one true approach to knowledge, and the conduit view of language.

These assumptions are also responsible for the misrepresentations that impede the ability of most students to recognize the ecological importance of the local cultural commons—and the different forms of non-monetized wealth that accompany the discovery of personal interests and talents, participating in mentoring relationships, and in becoming more intergenerationally connected and responsible. Unless they are part of a religious and ethnic group that values traditions as essential to their identity and sense of community, most students will leave the university with the idea that traditions are impediments to progress. And most will take-for-granted the assumptions that underlie both market and social justice liberalism—with few being aware of the traditions of conservative thinking that underlie the checks and balances system of government, the Constitution, and that there is a connection between thinking of Edmund Burke and Wendell Berry. Indeed, most students will reproduce the formulaic thinking of their professors that leads to labeling the market liberalism of President George W. Bush and think tanks such as the American Enterprise Institute as conservative. Nor will they recognize the importance of asking what these faux conservatives want to conserve

The following is a brief introduction to the educational reforms that need to be undertaken if future graduates are to avoid the naïve thinking found in Al Gore's recommendations for reducing consumerism. As the limited space here allows for only an overview of these reforms; if anyone is interested in a more extended discussion they should go to <http://cabowers.net/> and click on Handbook. The basic focus of educational reforms should be to educate students to understand the differences in how the local cultural commons and the industrial/consumer culture impact natural systems—as well as how they influence community traditions of self-reliance and mutual support. That is, educational reforms need to help students understand how the different aspects of the local cultural commons enable them to live less money dependent and less environmentally destructive lives. They also need to learn about why the diversity of the world's cultural commons are sites of resistance to the forces of economic globalization that are adding to global warming.

What is critically important at this time is for students to acquire the background knowledge that will enable them to recognize what is being lost when different traditions of the cultural commons are being undermined by economic and ideological forces. That most students, as well as adults, participate in their local cultural commons at a taken-for-granted level of awareness creates a special challenge for classroom teachers and university professors. In addition to being able to make explicit the largely non-monetized activities and relationships that are at the center of community life, classroom teachers and professors also will need the background knowledge necessary for helping students to become explicitly aware of the differences in their experiences as they move between the non-monetized and monetized sub-cultures. That is, as mediators they need to help students recognize the differences between food prepared in accordance with traditional recipes and industrial prepared food, between volunteering in a community project and working in a highly structured job, between developing their own creative talents and purchasing a commercially produced artistic creation, between the experience of being free of constant surveillance and being under constant surveillance, between the experience of being innocent until proven guilty and the possibility that because of a mistake in identity one might be imprisoned without legal recourse. These are only a few of the fundamental differences between the cultural commons and market-oriented culture that need to be clarified.

However, it is not just a matter of recognizing differences. Rather, the teacher/professor's role as a mediator also includes encouraging students to make explicit and thus name the differences in how their experiences in the two sub-cultures influence the development of their personal talents, the nature of their relations with others, as well how the experiences in the two sub-cultures influence their sense of empowerment, dependency, and social justice. Just as feminists became empowered when they began to name the different expressions of gender bias, being able to name what is otherwise experienced as the taken-for-granted is the first step to becoming communicative competent and thus to revitalizing local democracy as a key element in the local cultural commons.

Mediating between the students' experiences means helping students examine the practices in both the non-monetized and monetized sub-cultures in terms of what contributes to an ecologically sustainable future. Some of the achievements of the industrial culture will be recognized as worth retaining while others, such the patenting of gene lines and the creation of "terminator seeds" will be seen as adding to poverty and as environmentally destructive. Similarly, there will be aspects of the cultural commons that need to be reformed or rejected entirely.

The focus on what is sustainable also requires that the public school teacher and university professor be able to clarify the historical and ideological forces that underlie the various forms of enclosure that turn the cultural commons into commodities and expert services that require participating in the money economy. Learning about the tensions and interdependencies between the two sub-cultures students participate in on a daily basis is profoundly different from an education that introduces students to the abstract knowledge that is too often based on the intellectual interests of their professors or designers of curriculum materials. For example, because few philosophy professors have an interest in the cultural commons students are unlikely to learn how Western philosophers contributed to privileging a vocabulary that is largely responsible for the silences about the importance of the cultural commons and for the ethnocentrism that has prejudiced students to thinking that there is nothing to learn from other cultures about how to live more ecologically centered lives. Nor are they likely to learn from professors in other disciplines how other aspects of the cultural commons have been enclosed. As pointed out earlier, the prejudices inherent in the different disciplines frame what will be the focus of attention and what is marginalized. Our future prospects will depend in part on learning to renew the cultural commons that have been marginalized by most academic disciplines.

How the Educational Uses of Computers Undermine Learning About the Cultural and Environmental commons

Before explaining why students need to understand the differences between computer mediated thinking and communication, and the face-to-face, intergenerationally connected relationships that are part of the process of renewing the cultural commons it is important to explain at the outset why computers should not be viewed as a culturally neutral technology. Like the use of other technologies, they select for amplification certain aspects of human experience, while reducing others. They can store, model, schedule, retrieve, design, monitor, and communicate information and data over vast distances, as well as perform many other useful functions. But they have serious limitations, such as being unable to reproduce embodied experiences, differences in cultural contexts, tacit understandings, the complex messages that are part of oral communication, the history of the analogs encoded in the language that appears on the screen, mentoring relationships. In addition to reinforcing a Cartesian way of thinking that privileges the individual's perspective and sense of agency, and its increasing influential role in bringing more of everyday life under constant surveillance by government and corporations, other limitations of computer mediated learning can be traced to the cultural assumptions of the people who write the software-- which often go unnoticed because of the way that print reinforces the idea that what appears on the screen is objective and factual.

In the short space allowed here I will focus on some of the positive characteristics of computers when they are used in classrooms and in online courses, and then discuss why computers undermine the classroom teacher's and professor's mediating role in helping students recognize the differences between their experiences in the cultural commons and in the industrial consumer culture they also participate in on a daily basis. In the upper grades as well as in university classes, the role of the teacher and professor continues much as before computers appeared on the scene. Assignments are expanded by using the computer a research tool that provides access to a wider range of information—including already written papers that students can download and hand in as evidence of their own diligent efforts. When communication between the professor and student is online, computers change the relationship in fundamental ways. Online relationships have the advantage of marginalizing skin color, as well as the clothes and body language that communicate social classes and ethnic differences that sometimes are the basis of prejudicial judgments on the part of the teacher and professor. Computers also tend to make the relationship between students and teacher/professor less hierarchical, as well as freeing students to exchange ideas with each other—rather than with an authority figure standing in the front of the room. Ideas and questions can be exchanged without becoming part of the power relations that are communicated through the body language that is often misinterpreted and thus damaging to achieving mutual understanding of what is being discussed.

What may not occur to the professors, or to the administrators ever in search of new markets from which to draw students, is that the online courses represent a form of cultural colonization to the idea that education automatically translates into a higher material standard of living. The colonization to the industrial/consumer mind set takes two forms: that of educating students to taken-for-granted Western assumptions—including the assumptions that Western technologies and ways of thinking are the most progressive and enlightened in the world. The other form of colonization that online education promotes is the way it represents both directly and indirectly the knowledge, practices, and activities of the world's diverse cultural commons as the expression of backwardness—even though the cultural commons are, in many instances, a storehouse of knowledge about how to live the self-sufficient/less-consumer lifestyle that global warming will eventually force all cultures to adopt. Indeed, at all levels of the educational process, and in all cultures, the message is continually reinforced that computer mediated thinking and communication is essential to earning a living in the global economy.

In summary, when we begin to consider the relationships and forms of knowledge that are part of the process of mediating between the two different cultural orientations, we find that computers are extremely

limiting. In comparing the limitations of computer-based learning to what is required when teachers and professors view their responsibility as mediating between the students' experience as they move between the two cultural orientations, we find the following: (1) As mediators teachers and professors need an in-depth knowledge of the local culture that others take-for-granted—including the taken-for-granted conceptual and materialistic moral foundations of the culture of consumerism as well as the moral traditions that are the legacy of social justice achievements that are part of the cultural commons.. (2) The mediating process also requires face-to-face questioning, sharing of insights, developing the language for naming what previously was the un-named and un-recognized part of experience, and the continual comparing of the abstract representations of everyday experience with embodied experiences. None of these requirements can be met by the experts who write the software, as they will be unable to represent accurately the local experiences, cultural contexts, and the characteristics of the bioregion. The best they can do is construct abstract scenarios and models that may replicate certain cultural patterns of decision-making—but they will still be abstract and thus reinforce the spectator and game-oriented mentality of students.

The use of constructivist theories to justify the increasing reliance upon computers is also problematic. Over the years, constructivist approaches to learning in the child-centered classrooms did not lead students to ask about racism and gender bias, nor were they concerned about the destruction of the cultural and environmental commons that were coming under assault by the new technologies and market forces. Learning about the skills and accumulated knowledge connected with most cultural commons activities will be beyond the grasp of students who have been indoctrinated into believing that they can only find oppression and the stunting of their creative insights if they learn from the traditions of their community. The questions that should have been asked by the early progressive educators, and by today's proponents of constructivist computer-based learning are: Will reliance upon the students' immediate experience and insights enable them to learn about the medicinal characteristics of different plants, how to perform the skills connected with the building trades, how to prepare a meal that has the right nutritional ingredients, how to set up a loom and to play a game of chess, and the civil rights they should protect? Will they be able to recognize the political changes that characterized how other democratic societies allowed themselves to be transformed into fascist societies? What the constructivist-oriented classroom teachers will not do out of fear of imposing their knowledge on supposedly vulnerable students is to ask the important questions, and to introduce students to an understanding of the historical forces that continue to influence present ways of thinking. And this is exactly what the role of mediator requires—to ask the questions about the taken-for-granted and ecologically problematic aspects of the culture that few if any students have the

background knowledge to ask. It is in knowing what the important questions are-- what taken-for-granted ways of thinking and experience need to be named and thus critically examined, what needs to be changed and what needs to be intergenerationally renewed--that makes the constructivist approach to teaching and learning so inadequate. Indeed, given the silences about the nature of the ecological crises that characterize the thinking of constructivist learning advocates, it would not be incorrect to say that their approach is an example of the culturally and ecologically uninformed leading those who lack the background for recognizing what is happening to the environment on a global scale.

Computer based learning provides access to important and to what is often misleading information, as well as a sense of an abstract community that reduces personal vulnerabilities. However, it can never be the basis for learning about the experiential differences between the cultural commons and a money dependent existence--or about the cultural roots of the ecological crisis that the computer, as well as the people who use it, are complicit in deepening.

Western Philosophers, the Titanic Mind-Set, and the Upcoming Collision with Environmental Limits

The changes occurring in the natural systems we depend upon-- from global warming to the changes in the chemistry of the oceans, and now to the rapid decline in plant pollinators--suggest that our problems are much deeper than relying upon outdated carbon emitting technologies. One feature common to all forms of environmental degradation is that these changes have been occurring over hundreds of years, with the rate of change accelerating in recent years. That is, the changes have been part of the environmental context within which people's lives have been embedded. Yet, with the exception of recent scientific reports and the efforts of environmentally aware citizens, the language that organizes people's ways of thinking (including the language reinforced in public schools and most university classes) continues to marginalize an awareness of local environmental contexts. It also marginalizes awareness of the differences between embodied experiences in the cultural commons and in the culture of industrially produced products and services. What will be addressed here is how the tradition of Western philosophy has contributed to the pattern of context free thinking, and to reliance on metaphors that encode analogs that were constituted before there was an awareness of environmental limits.

The way Western philosophers contributed to a tradition of abstract thinking that is now putting us on a collision course with environmental limits deserves a more extended treatment than these short pages allows. Thus, readers may find it useful to read the chapter with a similar title in my online book, [Critical Essays on the Enclosing of the Cultural commons](#), I shall touch on the features of key Western philosophers

who contributed to the pattern of thinking that assumed that words, such as rationality, individualism, progress, freedom, development, etc., have a universal meaning that transcends different cultural contexts. Plato made a major contribution to this tradition of marginalizing the cultural and environmental contexts that have influenced the language and thought patterns of many non-Western cultures when he introduced the idea of “pure thinking” about a reality that is independent of experience and of the cultural and environmental ecology it is always embedded in—as Gregory Bateson argues. Plato also contributed to three other traditions that strengthened the Western prejudices and silences about the nature and importance of the cultural and environmental commons. These include his rejection of narratives and poetry as unreliable sources of knowledge, his arguments that indirectly marginalized the importance of intergenerational knowledge (traditions), his silence about the nature of other cultural ways of knowing (which were part of his cultural world), and the ways in which cultures degraded the environments they depended upon.

Descartes and Locke further strengthened the idea that intergenerational knowledge, which they understood as traditions, is an impediment to the efficacy of their respective approaches to knowledge. They also continued Plato’s silences about other cultural ways of knowing, and the dangers of degrading natural systems. If these examples appear unrelated to my argument that these philosophers, along with Adam Smith and John Stuart Mill (among others) contributed to the current tradition of relying upon an abstract vocabulary that continues to marginalize an awareness of cultural and environmental contexts, I suggest they read current philosophers such as John Dewey and Richard Rorty—and even scientists such as E. O. Wilson and Francis Crick. Readers should also examine how many current philosophers are aware of other cultural ways of knowing, the nature and importance of the cultural and environmental commons—and, most importantly, how the meaning associated with such metaphors as individualism, tradition, intelligence, conservatism, liberalism, progress, and so forth, are based on the analogs that were constituted during the period of Enlightenment thinking. This lack of awareness of the cultural commons also accounts for why philosophers have been so slow to recognize those aspects of the cultural commons that were (and continue to be) sources of injustice—such as the tradition of patriarchy, racism, cultural colonization, and the ecological crises.

This brief overview of the silences and prejudices that have characterized the tradition of mainstream Western philosophy brings us to the next question: namely, how can we begin to rely upon a metaphorical language that is informed by current analogs --rather than the analogs derived from the thinking of Plato, Descartes, Locke and other philosophers taught in our universities? The problem is made more difficult by

the fact that current analogs are often misleading, and may have long-term negative consequences. For example, some prominent scientists now argue that cultures are also subject to the process of natural selection by claiming that cultural patterns are “memes” that must meet the same test of Darwinian fitness as “genes”. Their extension of the theory of natural selection provides a powerful analog for market liberals who claim that corporations should only be held accountable to meeting Nature’s test of survival of the fittest. Using the computer as an analog for how to think about the human brain is also profoundly misleading.

Gregory Bateson and Clifford Geertz provide two important insights that may contribute to a more accountable use of the metaphors that play such an important role in framing how we think and in determining what is being marginalized or relegated to the realm of silence. Bateson’s insight was about the nature of double bind thinking. Double bind thinking, as he explains, relies upon analogs formed in the distant past by thinkers engaged in earlier political debates, and who were unable to account of our current cultural and ecological context. Thus, the analogs derived from the ideas of classical liberal thinkers, which many of today’s market liberals, and even environmentalists, take-for-granted can be traced back to the analogs derived from the writings of Locke, Smith, and Herbert Spencer (who coined the phrase “survival of the fittest”). To cite yet another example, the metaphor “tradition” still carries forward the analogs of the early Enlightenment thinkers who associated traditions with the church, privileges of the aristocracy, and the Great Chain of Being that limited people’s opportunities. In effect, overcoming double bind thinking involves understanding that the language we use may carry forward the misconceptions of the past. Overcoming the problem of double bind thinking requires drawing from current experiences in the matrix of cultural and ecological patterns the analogs that will connect our political discourse and policies with the realities we now face—which means recognizing that progress (unlike the Enlightenment view) often introduces changes in other parts of the layered and interdependent ecological systems that may be destructive.

Geertz’s idea of “thick description” is also relevant to ensuring that our metaphors are based on analogs that take account of our current situation of living in a culturally and ecologically diverse world. Thick description involves considering all the background (history of previous relationships, memory, class and social status, gender issues, etc.) that needs to be taken into account in understanding the difference between an involuntary wink and the influences on and the purpose of the wink that is intentional. Thick description also needs to be used in identifying the patterns, history, political issues, and all the rest of the ecology of relationships and ideas that can serve as analogs for understanding such terms as individualism,

freedom, progress, traditions, intergenerational knowledge, the commons, conservatism and liberalism, data, and so on. If we were to do a thick description of what it means to be an individual, free, to progress, to be a liberal or a conservative, and so on, that take account of the multiple layers of relationships and taken-for-granted traditions that are part of context and tacit dimensions of the experience commonly associated with these metaphors the question of which analogs would be the more accurate. Those derived from the Enlightenment thinkers or from the process of thick description? What examples would we come up with in terms of saying that our experience of being an individual is “like this” experience? Would the thick description also enable us to recognize that our individualism is always part of a larger ecology of interdependent relationships—including the language derived from earlier non-ecologically aware theorists who ignored context, tacit understandings and the taken-for-granted nature of most culturally mediated human experience?

Western philosophers put us on the path of double bind thinking, and our universities continue to ignore that our context-free metaphors that are the basis of so much contemporary thinking need to meet the test of thick description—and that the process of thick description needs to include the ecological footprint of human behavior that is based on the analogs derived from the Enlightenment.

Translating Theory into Ecologically Sustainable Educational Practices

The previous essay explained how metaphors carry forward the analogs that are the source of double bind thinking today, and on how the process of thick description is essential to establishing current and more ecologically sustainable analogs, packed a lot into a few short sentences. Admittedly, the essay made for pretty dense reading. Nevertheless, it provides the conceptual framework for understanding why so much of what is learned in public schools and universities reinforces the same mind-set that continues to be a major contributor to the deepening ecological crises.

To review the chief characteristic of double bind thinking: it involves relying upon the analogs constituted in the distant past when there was no understanding of environmental limits, the nature and ecological importance of the cultural commons, the diversity of cultural ways of knowing and thus of their cultural commons. These analogs also carried forward what Enlightenment thinkers marginalized and fundamentally misrepresented as sources of backwardness: namely such words as tradition, conserving, intergenerational knowledge, community-centered technologies, etc. The role that thick description plays in overcoming how language based on abstract and long held analogs reproduces today the misconceptions of the past is the other key idea. An example of how words (metaphors) reproduce the misconceptions and prejudices of the past can be seen in how the word “Luddite” is still used today to dismiss people as being

against technology. What the Luddites were really against was industrial technology that threatened their skills and the rhythms and interdependencies of community life. Examples of how thick description undermines the use of abstractions (that is words –metaphors—used today in a formulaic way) can be seen in the way feminists described the history of bias, exploitation, and marginalization. Thick description led to understanding the word “women” as having many possibilities and talents—and thus not limited to the stereotype that was encoded in the earlier formulaic use of the word. Thick description, in effect, problematizes the use of stereotypes that carry forward the analogs formed at an earlier time. Metaphors used today that are in need of being subjected to thick description include thinking of the brain as like a “machine” and operating on “software”, cultural patterns as like “memes”, and “patriotism” as supporting the President’s foreign policies of aggression.

The question now is why should the classroom teacher and university professor understand the nature of double bind thinking? And equally important, when should they encourage students to find more current and ecologically informed analogs by engaging in a thick description of words whose historically derived analogs are otherwise taken-for-granted? Again, this may sound like a heavy-duty discussion that would only interest an academic; but the reality is that these relationships need to be understood if we are to take seriously Albert Einstein’s observation that you cannot use the same mind-set to resolve the problems that were created by that mind-set. To put it more directly, classroom teachers and university professors need to help students identify current analogies that reflect both the cultural and ecological dimensions of daily experience. We need to stop relying on the past forms of intelligence now encoded in much of our language. The practical implications can be seen in the way feminists freed themselves from the patriarchal analogs that went unquestioned for centuries. The civil rights movement was also the outcome of this process of challenging how the dominant society relied upon the analogs from the distant past to justify the oppression and marginalization of African Americans—as well as indigenous cultures, and, now, various immigrant populations.

If students are going to learn about the community-centered alternatives that will enable them to live less consumer dependent lives, and to discover their own talents and future roles as mentors in an activity that is part of the cultural commons, classroom teachers and university professors will need to engage them in a thick description of the linguistic legacy of the Enlightenment thinkers who followed in Plato’s footsteps of relying upon “pure thinking” that was divorced from local contexts, embodied experiences, and an awareness of human/nature dependencies. Nearly every aspect of the curriculum contains words that are part of the process of socialization where cultural context and the embodied experience of students are

marginalized or relegated to the realm of silence. Examples may help here. Students who read or are told about technology are seldom asked to describe the ways in which different technologies mediate their experience—such as influencing their relationships with others, how they think, forms of dependency and empowerment, and so forth. Another typical example of how the meaning of a word is dependent upon an analog constituted in the distant past can be seen in how “community” is explained in third grade textbooks—as a place where people work, shop, and play. The thick description would bring out that community involves relationships with animals, plants, changes in weather, aesthetic experiences, awareness of the trails and sacred places of earlier inhabitants, and so forth. To cite another example, the title of the textbook, Our World, also carries forward an analog of the past that was based on the widely held root metaphor that represented humans as at the center of the universe and as in control of nature.

There are other metaphors that carry forward the misconceptions of Enlightenment thinkers that continue to be reinforced at all levels of public and university education—metaphors that make it more difficult for students to recognize the patterns of community self-sufficiency, interdependence, and ecological importance of the local cultural commons—which differ from culture to culture and from bioregion to bioregion. These metaphors include “individualism”, “freedom”, “liberalism”, “tradition”, “conserving” and “conservatism”, “intelligence”, “progress”, “technology”, “free- markets” and so forth. If students were to do a thick description of liberalism (which has its conceptual roots in the non-culturally informed theory-based thinking of John Locke, Adam Smith, and John Stuart Mill, etc.) they would find that the analogs associated with such words as freedom, individualism, progress, and a human-centered world, would have to be radically altered in order to take account of how language carries forward and influences what and how the “individual” thinks, how she/he is dependent upon natural systems, how progress always involves unintended consequences and often leaves problematic traditions still in place, how different technologies mediate and thus are not a neutral tool, and so forth. Similarly, a thick description of the students’ experience of traditions (rather than relying upon the decontextualized analogs taken-for-granted in the formulaic use of the word) would encompass the whole range of daily experience that involve the re-enactment of patterns and ways of thinking that have been carried forward from the past. It took Edward Shils over 350 pages to describe the complexity of traditions. And he was not making an argument for traditions. Rather, he was doing a thick description of how traditions are carried forward as part of people’s taken-for-granted experience—as well as the misconceptions that lead people to be unaware of when important traditions, such as habeas corpus and privacy are being enclosed by other traditions like ideologies, market forces, and the drive to create technologies as total surveillance systems.

The key point here is that unless students are able to recognize how their thinking is largely dependent upon words (metaphors) whose meanings are framed by analogs constituted in the past (and are largely taken-for-granted today), they will continue to ignore the local cultural commons that need to be revitalized as alternatives to the consumer-dependent lifestyle that is exacerbating global warming and the other forms of environmental degradation. The double bind that is being perpetuated today results from the failure of classroom teachers and university professors to rectify the meaning of key metaphors. Many of these metaphors, and the analogs they encode, will continue to be taken-for-granted by classroom teachers and university professors—including the old assumptions that the techno-scientists will find a solution to global warming, and that progress will continue as long as people increase their level of consumerism and as market forces continue to enclose what remains of the world’s diversity of cultural commons.

A Guide for Classroom Teachers and University Professors

Discussions of educational reforms that address how to revitalize the cultural commons as well as how to help students develop the communicative competence necessary for engaging in the political process of resisting various environmental and community forms of enclosure too often are met with indifference or a blank stare that indicates a lack of understanding. Why otherwise intelligent people are unable to recognize the community and ecological importance of the cultural commons can be traced to the way in which public schools and universities have relegated the knowledge and skills that sustain the cultural commons to such low status that they are left out of the curriculum. Thus, in order to discuss educational reforms that address how to revitalize the local cultural commons in an era of global warming and economic globalization, it is first necessary to have a clear understanding of the characteristics of the cultural commons and the different forms of enclosure. The following provides an introductory overview.

Key Characteristics of the Cultural Commons

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- The cultural commons represent the largely non-monetized and non-commodified knowledge, skills, activities and relationships that exist in every community.
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- They are part of the intergenerational legacy within communities that enable people to engage in activities and relationships that are largely outside of the mainstream consumer, money dependent culture.
- The cultural commons are intergenerationally passed along through face-to-face relationships that may include mentoring.

- The nature of the cultural commons vary from culture to culture, with ethnic groups often sharing aspects of the cultural commons with the dominant culture as well as maintaining their own cultural commons.
- The cultural commons of some cultures may be the source of unjust social practices, while in other cultures the cultural commons carry forward the traditions essential to civil liberties and democratic practices.
- The cultural commons are the basis of local economies and systems of mutual support that contrast sharply with the market system that is driven by the need to create a demand for the constant stream of new products.
- Participation in different aspects of the local cultural commons enables people to discover personal interests, develop skills, and to engage with others in ways that strengthen the sense of community belonging and responsibility.
- The cultural commons, in relying upon non-industrial approaches to production and consumption, have a smaller adverse impact on natural systems.
- The activities and skills that are expressions of the cultural commons connect the generations in ways that are profoundly different from relationships that characterize relationships in a consumer-oriented culture. Moral reciprocity, receptivity to intergenerational learning and mentoring, and an awareness of what needs to be conserved as essential to community identity and self-sufficiency are more easily learned.
- Embodied experiences in the cultural commons are more likely to strengthen the propensity to cooperate rather than to compete, and to lead to identifying oneself more in terms of mutually supportive relationships and personal talents rather than as an autonomous individual who relies upon consumerism as the marker of success.

- The cultural commons strengthen the patterns of mutual support and face-to-face relationships with a broader segment of the community, and thus strengthen the practice of local democracy.
- The cultural commons are under constant threat from ideological, techno-scientific developments, and efforts of the market system to incorporate different aspects of the cultural commons into the market system—thus transforming what remains of community self-sufficiency into dependence upon the market and a money economy.

Examples of Intergenerational Knowledge, Skills, Practices, and Activities Identified as the Cultural Commons: (this list will vary from community to community, and between ethnic groups within the community)

- **Food:** Growing, preparing, and ways of sharing food. Includes knowledge of growing conditions, recipes for preparing food, traditions of sharing food that strengthen family and ethnic solidarity.
- **Healing Practices:** Intergenerational knowledge of medicinal characteristics of plants, traditions of providing different forms of support for members of the community that have physical and emotional problems
- **Creative Arts:** Various forms of dance, theatre, poetry, writing, painting, sculpture, photography that involve community participation, development of interests and talents, and are only minimally dependent upon the market system of production and consumption.
- **Narratives and ceremonies:** The narratives that are expressions of community memory ranging from sports, achievements in the area of social justice, exemplary individuals who have made major contributions and those who had a destructive influence. Ceremonies that celebrate important events, religious traditions, and so forth. Important to passing on the moral values of the group and strengthening ethnic, working class, religious and other forms of group identity.

- **Craft Knowledge and Skills:** Activities that combine aesthetic judgment and skill in working with wood, metal, clay, jewelry, glass. Produces both useful objects as well as provides for individual expression that has a transformative effect on the quality of everyday life that raises it above the banal, what is routine and taken-for-granted.
- **Games and Outdoor Activities:** Intergenerational knowledge, skills, and moral guidelines carried forward in various games ranging from playing chess, cards, to football, track, tennis, and other games. Also, includes hiking, birding, camping, and so forth. Many of these activities increasingly are becoming commercialized and thus are being transformed in community destructive ways.
- **Animal Husbandry and Care:** Intergenerational knowledge about the care, breeding, and uses of different animals—from sheep dogs, horses, to household pets. Encompasses a wide range of knowledge about sources of feed, habits and traits of the animal, to how to treat physical and other forms of disabilities.
- **Political Traditions:** Democratic practices, traditions that protect civil liberties achieved in the past, modes of political discourse, moral codes that govern political outcomes not dependent upon use of force and violence, protection of minority groups and points of view, protection of academic freedom.
- **Language:** Vocabulary that illuminates and hides in terms of the culture's priorities and prejudices, may be a storehouse of knowledge of local ecosystems, frames different forms of social relationships, reproduces the misconceptions of earlier thinkers, may carry forward the wisdom of earlier times, essential to communicative competence, may be used by totalitarian forces to control consciousness and behavior, has a different cultural influence depending upon whether it communicated face-to-face or mediated through print and electronic modes of communication.

Forms of Enclosure:

- **General definition:** Enclosure involves transforming the cultural and environmental commons from what is largely shared in common, and subject to local decision making, into what is privately owned, part of the industrial/market economy, and where decision making is located outside the community.
- **Ideologies:** The tradition of market liberalism, with its emphasis on expanding markets and profits, private ownership, and on ignoring cultural differences, continues to be a major source of enclosure. Religious fundamentalism may also lead to different forms of enclosure such as civil liberties, narratives of achievements in the areas of social justice and environmental protection.
- **Technologies:** The mediating characteristics of different technologies contribute to various forms of enclosure—from the way computers enclosure (marginalize) the possibility of mentoring and face-to-face communication, the enclosure of privacy by surveillance technologies, the enclosure of craft knowledge by automated machines, to the bio-technologies that now make it possible for private ownership of gene lines.
- **Universities that Define What Constitutes High-Status knowledge:** By identifying what constitutes high status knowledge (which is based on many of the same deep cultural assumptions that underlie the industrial/consumer oriented culture that is contributing to the ecological crises) universities and colleges have relegated the various forms of knowledge that are the basis of the cultural commons to low status—with the result that few graduates are aware of the complexity and ecological significance of the cultural commons of their communities.
- **Silences Perpetuated by Modern Forms of Development:** The emphasis on change, individualism, consumerism, personal happiness and interests (as well as the personal insecurities that accompany the modern industrial system of production and consumption) has resulted in social divisions where the younger generation is unaware of how participation

in the local cultural commons may lead to discovering personal interests, the development of skills and talents, and a sense of community. Indeed, it would be more accurate to say that most of the younger generation is predisposed to reject the cultural commons as irrelevant. The older generations who have discovered personal fulfillment and ways of creative expression from participating in different activities within the local cultural commons too often remain isolated from the younger generation. What is being enclosed are the intergenerational continuities, which leaves the younger generation more dependent upon what the market can provide.

- **Economic Globalization:** Western traditions that are being universalized-- such as approaches to education, various uses of computers, science, English and other dominant languages, market system of production and consumptions, military domination, etc.,--are contributing to the enclosure of many of the world's languages and thus of the world's cultural commons. The result is that more people are becoming dependent upon consumerism and thus adding to the forces deepening the ecological crises

- **Frenetic Pace of Everyday Life:** The modern lifestyle of excessive consumerism, technologies that require constant personal attention such as cell phones and computers, work and home responsibilities, and the increasing feeling that if one is not actively engaged simultaneously in several activities that time is being wasted-- all contribute to focusing attention on the task at hand. This leaves little time for in-depth reflections about those aspects of the cultural and environmental commons that need to be intergenerationally renewed in order to ensure our future survival. This frenetic lifestyle, where escape is too often found in watching television with its constant reminders of consumer products that lead to greater happiness, also contributes to the current state of indifference to considering the larger and long-term issues—such as the different impacts that economic globalization and the spreading ecological crises are having on the lives of hundreds of millions of people. The lack of time to become informed and reflect on the changes that need to be undertaken is also a major contributor to various forms of enclosure.

The Practice of a Values-Based Education

The previous essays have taken the reader on a wide tour of issues that are not usually discussed in thinking about educational reforms; thus, it is somewhat surprising that I have not received more critical comments. Having examined how universities promote the same high-status ideas and values that underlie the industrial/consumer oriented culture, how the metaphorical nature of language carries forward the misconceptions of earlier thinkers as well as the tradition of relying on words that are “context independent”, and how the local cultural commons represent alternatives to dependence upon a level of consumerism that is a major contributor to global warming, it is now time to focus on educational reforms that will contribute to achieving the values essential to morally coherent and ecologically sustainable communities.

The values of intellectual curiosity, emotional and spiritual intelligence, a commitment to freedom, justice, and peace--cannot be given more than lip-service by teachers/professors if the daily experience of students reinforces the values and taken for granted practices of the market place. The voice of the teacher/professor will sound ritualistic in comparison with the daily pressures of working in repetitive and unfulfilling jobs, increasing personal debt, uncertainties of economic and food security, daily reporting of collusion between government and corporate interests, and the failures of an immoral imperialistic foreign policy. Social justice and environmental educators have attempted to reverse the ecologically and community-destructive slippery slope that has been a hallmark of America, but have had only minor successes. And even the minor successes, especially in the area of racial and gender equality, have failed to slow the rate of environmental degradation—which is now a world-wide crisis. In spite of their well intended efforts, teachers/professors have also failed to educate students about the community-centered alternatives to the hyper-consumerism lifestyle, as well as how the industrial/consumer-oriented culture undermines local democracy and traditions of community self-sufficiency. As mentioned in previous essays, few teachers/professors recognize that a major contributor to the current political, ecological, and moral crises is the hyper-consumerism promoted by the market liberal ideology, with its emphasis on ever increasing profits, expansion of markets, and exploitation of workers and consumers.

When teachers/professors become aware that reducing the level of consumerism is as essential, if not more so, than the adoption of more technologies that have a smaller carbon footprint, they then may begin to recognize that the small group of colleagues advocating for the renewal of community need their support if the current environmental, political, and economic trends are to be reversed. And when this realization is more widely accepted, they will find that curriculum reforms must be centered on introducing students to an understanding of the local cultural and environmental commons. the importance of maintaining the diversity of the world's commons, the economic, ideological, and technological forces that are enclosing them (that is turning what was previously a largely non-monetized relationship and activity into one that is monetized and subject to market forces). The values identified in the Covenant on values-based education can only be fully realized in face-to-face, intergenerationally connected communities where individuals discover personal talents, develop skills and the communicative competence essential to participatory democracy—and not in the market-centered existence where selfishness and competitiveness are essential to the “survival- of-the-fittest” ethos.

Educational reforms that focus on revitalizing the local cultural and environmental commons in rural and urban America will require that the taken-for-granted interpretative framework reinforced today in most classrooms about individual autonomy, the progressive nature of change, and a human-centered world will need to be examined critically. The curriculum should focus on the tensions existing between the traditions of self-sufficiency and personal empowerment found in most aspects of the cultural commons as well as the forms of deskilling, disempowering, and ecological degradation that is connected with being so totally dependent upon consumerism that has now entered its globalization phase. The overriding questions that should be addressed in the students' examination of different aspects of the cultural commons and the industrial/consumer culture include: How are relationships affected? Does the activity contribute to the development of personal talents and skills? Is it mutually supportive of others? Does it contribute to becoming less dependent upon a money economy? What impact does it have on the natural environment? Does it diminish the prospects of future generations? Does it require the exploitation of others? Is the activity and the way of thinking it requires free of oppressive implications for others?

If these questions are considered carefully, rather than seen as a ritualistic check list, what should become clear is that a curriculum that is centered on the tensions between the cultural and environmental commons, and the industrial culture that is tireless in enclosing what remains of the

world's commons, will focus on learning about relationships, and the connections between the language acquired in becoming a member of the language community and what is marginalized, silenced, and misrepresented. As pointed out in previous essays, the language learned in public schools and universities has marginalized the importance of being aware of the nature and importance of the cultural commons, the culturally non-neutral nature of technology, the ways in which language carries forward the misconceptions of earlier theorists who were unaware of environmental limits and different cultural ways of knowing. And it has reinforced the myth of the autonomous individual who is separate from the world that she/he observes and acts upon. A curriculum, which can be introduced in the earliest grades and developed in greater depth at the university level, that focuses on different aspects of the cultural commons, and in a comparative way on what the techno-scientific/industrial products that people have become dependent upon, brings into the foreground the inescapable nature of how the individual is embedded in multiple levels of relationships and interdependencies.

How does the conduit view of language influence whether embodied relationships are recognized and how does it affect whether the individual accepts responsibility for intellectual accountability and moral reciprocity? If words are accepted as having a universal meaning, rather than being context dependent, does this contribute to the individual being more susceptible to propaganda and an Orwellian political discourse? These questions, using age-level appropriate examples, can be introduced in the early grades by using the concept-shaping language that appears in textbooks and on the computer screen as examples. They can also be introduced at the university level where an historical perspective as well as differences in ideologies can be discussed.

The last essay contained a list of cultural commons activities, with each item on the list having many different forms of expression and depth of knowledge and skill. Each of these areas, whether in the areas of food, creative arts, craft knowledge and skill, democratic traditions, is under the constant pressure of enclosure—that is, being transformed from an intergenerationally connected and largely non-monetized activity into a product or service that requires participating in a money economy that is both environmentally destructive and increasingly unreliable as corporations downsize and outsource. In the case of our traditions of democracy and civil liberties, the process of enclosure is resulting in an increasingly authoritarian political system that relies upon surveillance, the increasing threat of being labeled as a threat to society, and loss of a checks and balance system

of government. Learning the history of this aspect of our cultural commons as well as the history of the ideological and economic forces that lie behind this gathering force will also contribute to empowering people, as well as their commitment to local communities, peace, and democracy.

In effect, every form of participation in the cultural and environmental commons--regardless of cultural group and rural, suburban, and urban setting—can be made the focus of what needs to be critically examined. In some instances, aspects of the cultural commons will be found to be in need of radical change, and in other instances there will be aspects of the techno-scientific based industrial culture that will be found to be beneficial to the life of the community—and essential to lowering the human impact on natural systems.

Teaching as Mediating Between Unsustainable and Sustainable Cultural Practices

There are two certainties that need to be taken into account when thinking about educating for an ecologically sustainable future. First, cultural beliefs and practices, which vary from culture to culture, are major contributors to the ecological crises. The second certainty is that so little attention has been given to the cultural roots of the ecological crises that we do not always have a clear understanding of which beliefs and practices (including uses of technology) are part of the problem or part of the solution. In many instances, this dichotomous pattern of thinking also becomes part of the problem as some technologies, such as computers, are a constructive force in today's world while at the same time they contribute to economic globalization and to an even more extreme form of subjective individualism. These certainties need to be kept in mind when thinking of the classroom teacher's/professor's/parent's role as a mediator whose task is to help students become more aware of which cultural patterns and ways of thinking are ecologically sustainable—and which are not.

As discussed in earlier essays, most of the students' everyday experience involves participation in different aspects of the local cultural commons (e.g., food prepared according to traditional recipes, learning from parents how to take care of a minor physical problem, participating in a musical group, playing a game of chess, assuming that one's privacy is not being invaded by government or corporations, helping others in solving a problem or completing a task, etc). They also participate in various market/consumer dependent activities (eating at a fast food outlet, purchasing various items, driving a car, using medicines for a newly identified illness, working in various jobs, etc). Each of these activities also involve reliance on distinct vocabularies and a complex ecology of emotions, skills, and relationships. What is common to both sub-cultures that

students daily participate in is that most of the patterns and ways of thinking are largely taken for granted. In being taken for granted, the students will be less aware of their ecological footprint, and less able to articulate why certain forms of enclosure of the cultural commons need to be resisted.

The mediator metaphor is particularly apt in terms of indicating that education should not be a matter of giving students answers and pre-determined ways of thinking that too often reproduce the misconceptions from the past. Rather, the role of the mediator is to encourage students to make explicit the different dimensions of their experience as well as their ecological consequences. For example, encouraging students to name the differences in their experience of relationships, self-empowerment or dis-empowerment, what is marginalized or cannot be communicated, what contributes to a greater or smaller ecological footprint, etc., as they engage in print-based and oral communication with others, in learning to play a musical instrument and purchasing a CD, in sharing a meal with family and friends and grabbing a fast meal that has been industrially prepared, in volunteering in a community project and working at a job where the intelligence and skill have been built into the machine, assuming that one is innocent until charged and proven guilty and being pulled out of a line and questioned because of skin color, foreign name, and having one's name appear on an intelligence agency's list of potential threats to society.

The mediator's task is to encourage students to describe (that is, to attach words) to the relationships and patterns of their experience in the cultural commons that would otherwise be left as the taken-for-granted background to what they are explicitly aware of. The description, as mentioned in an earlier essay, would be what Clifford Geertz referred to as "thick description" or what can be called a personal bio-cultural ethnography. The key is in encouraging students to make explicit the complexity of the personal experience as well as the cultural history and patterns that have also influenced the experience. This can then be compared with their thick description of experiences in the market/consumer oriented culture. Learning to give close attention to cultural differences leads to developing the language necessary for exercising communicative competence—which is required in resisting the enclosure of different aspects of the cultural commons. What is common to nearly all forms of enclosure is the loss of skills, patterns of mutual support within the community, and local decision making. Ironically, the significance of these losses are too often represented as necessary to the achievement of more individual freedom and material progress.

The role of the mediator also includes encouraging students to investigate the forces that contributed to past forms of enclosure of the cultural commons--such as technological, scientific, ideological, linguistic, economic developments. Giving close attention to the differences between experiences in the cultural commons and in the market/consumer culture may lead to asking questions about which practice and tradition has the more adverse environmental impact. In some instances, it may be decided that what has been discovered and made available through the scientific/industrial system of production has made important contributions to the quality of everyday life; while aspects of the cultural commons may be found to be sources of social injustice. Before the thick description is undertaken, it is really not possible to judge what is more ecologically sustainable and enhancing of community. The layered nature of the metaphorical language that frames how members of the community think, as well as values encoded and unconsciously reproduce in the process of metaphorical thinking, are also part of the cultural commons. Many of the metaphors, as pointed out in previous essays, carry forward the analogs that were constituted at an earlier time by theorists who did not understand either the nature and importance of the cultural commons (often seeing them as backward), or the possibility of overshooting the sustaining capacity of natural systems.

Rather than accept the meaning of such metaphors as progress, individualism, tradition, conservative, freedom, and so forth, which are based on the analogs constituted in the distant past, the mediator should encourage students to do a thick description of their embodied experiences that accompany the use of these abstract metaphors. That is, could they describe the experience of being an autonomous individual without having to describe the network of constantly changing relationships and interdependencies with other people and with the many natural systems they are nested in? Would their description of the experience of autonomy also include the cultural patterns that are an inescapable aspect of how they express their supposed autonomy? Would the Enlightenment view of tradition, which is still held by many educators who view it as a source of backwardness and thus an impediment to progress, be understood differently if students were encouraged to do a thick description of the cultural patterns they re-enact on a daily basis—and that meet Edward Shils' understanding of a tradition as any aspect of culture that is passed along over four generations? Would the analog that leads to thinking of technology as a neutral tool hold up if students were to do a thick description of how the characteristics of the technology amplify certain aspects of experience while reducing others? Extending the mediating responsibility of the

classroom teacher/professor/parent into the area of the metaphorical language that influences understanding relationships within the cultural commons and the industrial/consumer culture would help to ensure that the metaphors derived from the past would have less control over how the current cultural, moral, and ecological crises are understood and responded to. Albert Einstein made the point that we cannot solve the current crisis by relying upon the same mind-set that created it. This insight also applies to the problem of relying upon the old analogs encoded in the metaphors we rely upon today and that continue to frame our thinking in ways that do not take account of current political, cultural, and environmental realities.

In other words, mediating between cultures (the cultural commons, the culture of the industrial/consumer dependent lifestyle, and the cultures of the distant past) requires that we do not take the easy road of relying upon the formulaic use of language derived from a cultural and environmentally different past; but rather make the effort to align our language in ways that enable us to understand the relationships and interdependencies that are critical to our future survival as morally coherent and ecologically sustainable communities.

Chapter 2 E. O. Wilson's Drift into Scientism: The Challenge Facing Science Educators

The manner in which Darwin's theory of evolution is being extended to explain non-biological phenomena poses a special challenge to environmentally oriented thinkers and activists. It also challenges educators to reflect on the reforms needed that will enable scientists to recognize how limited the scientific method is for addressing cultural issues, and for predicting the direction of future cultural changes. E.O. Wilson's claim, for example, that moral values are actually moral predispositions encoded in our genes, and that moral values must meet the test of natural selection (that is, ensure the reproductive success of future generations) undercuts the cultural knowledge systems upon which our moral values as well as others are based. Similarly, the claims by computer proponents such as Hans Moravec (1988), Kevin Kelly (1994), and Ray Kurzweil (1999) that computers represent the transition to the "post-biological phase of evolution," and that artificial intelligence will replace the more limited and poorly adapted human intelligence, have even more widespread implications. One of the most obvious implication being that if people want to postpone their own evolutionary demise, they will need to adapt as many aspects of their lives as possible to what can be processed through a computer. To question or resist the use of computers on the grounds that they promote a consumer dependent lifestyle, and that

they undermine face-to-face communities, would be, in effect, to resist Nature's design process—which, so the scientific argument goes, ensures that the better adapted survive. Gregory Stock, the author of Metaman: The Merging of Humans and Machines into a Global Superorganism (1993) predicts that the non-western cultures that fail to adopt digital technologies, and the accompanying western mind-set, will become as extinct as the dinosaur. For environmentalists working to preserve linguistic diversity as part of a strategy for preserving biodiversity, Stock's reading of the process of natural selection suggests that Nature has already doomed their efforts to failure. Current extrapolations on the theory of evolution confront environmental educators with the especially difficult challenge of helping students understand the appropriate and inappropriate extrapolations on the theory of evolution. This challenge is made even more difficult by the claims of such prominent scientists as E. O. Wilson and the late Carl Sagan that the scientific method is the only legitimate approach to knowledge. Indeed, if Wilson and the others are correct in claiming that the brain is a product of natural selection, then the outcome of natural selection will also determine which species survives the ecological crisis—which means we are deluding ourselves in thinking that our fate is partly in our own hands.

While evolution is being increasingly used as the primary explanatory framework in disciplines as wide ranging as anthropology and psychology, we find the broadest claims being made on its behalf by E. O. Wilson who is being acclaimed as one of the nation's leading scientists and environmental spokesman. By extending the theory of evolution in ways that explain culture as having a genetic basis, and thus guided by Nature's test of genetic fitness, his writings undermine the environmentalist's efforts to address the cultural roots of the ecological crisis. Thus, it is important to consider how his extrapolations support the cultural forces that are undermining the self-renewing capacity of natural systems. It is also important to examine the double bind inherent not only in Wilson's thinking but in the futuristic prescriptions of other evolution-oriented scientists and technologists.

This critique of Wilson is not intended in any way to diminish the significance of his scientific research and publications. But his efforts to establish a new discipline of sociobiology, which is to provide empirical evidence of the biological basis of human behavior and cultural norms, is more problematic—and thus deserving of criticism. In the Twenty-Fifth Anniversary Edition of Sociobiology: The New Synthesis (2000), Wilson summarizes what is needed to make the final separation between scientific and pre-scientific knowledge.

To grasp human nature objectively, to explore it to the depths scientifically and to comprehend its manifestations by cause-and-effect explanations leading from biology into culture, would be to approach if not attain the grail of scholarship, and to fulfill the dreams of the Enlightenment....human nature as the epigenetic rules, the inherited regularities of mental development. These rules are the genetic biases in the way our senses perceive the world, the symbolic coding by which our brains represent the world, the options we open to ourselves, and the responses we find easiest and most rewarding to make. pp. vii-viii

As he puts it in Consilience: The Unity of Knowledge (1998), the genes that predispose people to think and act in certain ways are governed by the process of natural selection. While he appears to grant culture a role in the process of evolution by using the phrase “gene-culture co-evolution,” the reality, as he puts it, is that “the consistent guiding force is natural selection.” He goes on to explain that the “genes that confer higher survival and reproductive success on organisms bearing them, through the prescribed traits of autonomy, physiology, and behavior, increase in population from one generation to the next. Those that do not, decrease” (p. 129).

As this reductionist explanation has especially important implications for environmentalists and educators who are considering how different cultural beliefs and practices impact the environment, it is important that the conceptual foundations of what Wilson is representing as the new paradigm for understanding cultural change be examined more closely. In Consilience, he states that “today the greatest divide within humanity is not between races or religions, or even, as widely believed, between literate and illiterate. It is the chasm that separates scientific from prescientific cultures” (p. 45). He goes on to claim that “science for its part will test relentlessly every assumption about the human condition and in time uncover the bedrock of the moral and religious sentiments” (p265). Scientific knowledge, which Wilson calls the “true scientific epic” thus provides the best chance of human survival. But human survival will require the religions of the world to adopt a secular interpretation of the human epic that is in accordance with the findings of science. In effect, Wilson is claiming that only a science-based religion will meet the test of natural selection.

Many of Wilson’s admirers in the environmental movement are likely to claim that he acknowledges that culture plays a role in process of human/cultural evolution. Given his environmental contributions, they are also likely to ignore the implications of his epistemological

universalism: that is, that science provides the only legitimate pathway to knowledge. Given this tendency to ignore Wilson's proclivity for sweeping generalizations, it is all the more important to consider closely how he explains the genetic basis of the mind, as well as the epigenetic rules that guide the formation of culture.

Wilson's understanding of the mind is especially important. In his chapter on "The Mind," he writes that "all that has been learned empirically about evolution in general and mental processes in particular suggest that the brain is a machine assembled not to understand itself, but to survive" (1998, p. 96). He goes on to claim that "the surest way to grasp complexity in the brain, as in any other biological system, is to think of it as an engineering problem" (1998, p. 102). His use of a mechanistic metaphor for representing the brain, as well as his suggestion that the brain needs to be approached as an engineering problem, needs to be considered within the context where the guiding values will be derived not from traditional religion, but from the "true evolutionary epic." That is, the brain should not only be understood, but also engineered in terms of what contributes to survival within the long-term time frame that Nature requires to separate the fit from the unfit. While he does not advocate eugenics, his rejection of non-scientifically based values as well as his reference to thinking of the brain as an engineering problem certainly opens the door for scientists who want to speed up the rate at which Nature's design process works.

Wilson's explanation of the genetic basis of the epigenetic rules that filter and code stimuli in sense organisms, and guide the formation of behavior and culture also needs to be challenged. As he explains it,

the genes prescribing the epigenetic rules of brain and behavior are only segments of giant molecules. They feel nothing, care for nothing, intend nothing. Their role is simply to trigger the sequence of chemical reactions within the highly structured fertilized cell that orchestrate epigenesis. Their writ extends to the level of molecule, cell, and organ. This early stage of epigenesis, consisting of a series of sequential physicochemical reactions, culminates in the self-assembly of the sensory system and the brain. Only then, when the organism is completed, does mental activity appear as an emergent process. The brain is a product of the very highest levels of biological order, which are constrained by epigenetic rules implicit in the organism's anatomy and physiology. 1998, p. 165, italics added

As I read this statement, the sequences of chemical reactions triggered by the genes prescribe the epigenetic rules that govern the self-assembly of the sensory system and brain. But following the

statement where Wilson asserts that the brain is the product of the highest levels of biological order he introduces the idea of gene-culture co-evolution. Witness the constitutive role he assigns the brain, which follows the last sentence in the above quotation:

Working in a chaotic flood of environmental stimuli, it (the brain) sees and listens, plans its own future. By that means the brain determines the fate of the genes that prescribed it.

Across evolutionary time, the aggregate choices of many brains determine the Darwinian fate of everything human—the genes, the epigenetic rules, the communicating minds, and the culture. p. 165

These two segments of his explanation of the casual relationship between genes and the brain represent the most important paragraph in his book. First, it asserts without any scientific evidence that the brain, including all the activities of the brain –metaphorical thinking, memory, conscious awareness, the meta-cognitive schemata shared with other members of the culture, experience of meaning, value judgments, intentionality, sense of identity—are the product of physicochemical reactions. Having made this claim, which would also have to account for differences in cultural ways of knowing, including all the brain implicated experiences listed above, he then reverses himself by stating that the aggregate choices of many brains determine the Darwinian fate of everything human—which he lists as the genes and epigenetic rules that he early describes as responsible for the self-assembly of the sensory system and brain In Biology as Ideology (1992), R. C. Lewontin sums up the problematic logic of Wilson’s sociobiology as “genes make individuals, individuals have particular preferences and behaviors, the collection of preferences and behaviors make culture, and so genes make culture” (p. 14). Even though Wilson rejects being classified as a genetic determinist, Lewontin’s summary needs to be compared with Wilson’s own statement about “the genes prescribing the epigenetic rules of brain and behavior are only segments of giant molecules” (1998, p. 165). Wilson’s description of the “brain’s machinery,” and what he elsewhere describes as the “brain-machine, which is made up of cells, also needs to be taken into account in assessing the correctness of Lewontin’s summary.

What we call meaning is the linkage among the neural networks created by the spreading excitation that enlarges imagery and engages emotion. The competitive selection among scenarios is what we call decision-making. The outcome, in terms of the match of the winning scenarios to instinctive or learned favorable states, sets the kind and intensity of subsequent emotion. The persistent form and intensity of emotions is called mood. The

ability of the brain to generate novel scenarios and settle on the most effective among them is called creativity. 1998, p. 115

The cells that are the basis of the neural networks that make all of this happen, to reiterate Wilson's causal linkages, are the genes that prescribe the epigenetic rules that, in turn, prescribe the physiochemical processes within the brain that lead to the experience of meaning, creativity, and so on. To put this another way, these mental processes, that is, the configurations of the brain-machine best suited to survive over generations, are governed by Nature's design process that we know as natural selection.

Again it must be pointed out that Wilson's attempt to avoid the criticism of genetic determinism is like a verbal shell game. His argument that genes create brains, and that brains determine the survivability of the genes and the epigenetic rules governing brains and behavior is circular, and has no basis in scientific evidence. Wilson is simply trying to explain away the contradiction inherent in his theory. And he needs the reader to assume that his authority as a much acclaimed scientist carries over into the complex domain of the world's diverse cultures. In spite of Wilson's gift as a writer and as respected scientists, the reader needs to keep in mind that his attempt to represent the brain and culture as co-determinants in the evolutionary process, it is always, as he also claims, the genetic make-up of humans and, more importantly, the other organisms that constitutes the environment that culls the weak from the strong. As Wilson puts it: "the brains that choose wisely possess superior Darwinian fitness, meaning that statistically they survive longer and leave more offspring than brains that choose badly" (1998, p. 165).

The basic inconsistency in Wilson's thinking, and in the thinking of environmentalists who take him seriously, can also be seen in the following statement. In the introduction to the anniversary edition of Sociobiology: The New Synthesis, Wilson writes that "conservation, as I have long believed, is ultimately an ethical issue." Ignoring what he has written elsewhere about the genetic basis of moral sentiments, Wilson goes on to claim that "moral precepts in turn must be based on sound, objective knowledge of human nature" (p. viii). The immediate question might be: If moral sentiments are genetically encoded, what purpose would be served by acquiring a "sound, objective knowledge of human nature"? It appears that Wilson is retreating to the old view of rationality as a force that can shape the course of Nature. This leads to another question: How can a scientist or anyone else acquire objective knowledge of human nature if they unavoidably rely upon the cognitive schemata encoded in the language of their cultural group? The cognitive schemata that is a

taken-for-granted in Wilson's thinking, and can be traced back to Johannes Kepler's way of understanding the universe, can be seen in Wilson's representation of the brain as a mechanism—and as an engineering problem. Wilson also takes-for-granted the cultural cognitive schemata that represents change as linear and progressive in nature—which leads him to see scientific knowledge as representing a progressive advance over the knowledge of so called “pre-scientific cultures.” The irony inherent in this cultural pattern of thinking is that Wilson argues, as we later shall see, that scientifically based knowledge should be the basis of a world monoculture, which will require the disappearance of diversity in cultural ways of knowing. Given that natural selection does not move in a linear, progressive direction, and that it is the dynamic source of biological diversity, Wilson's argument that the world's cultures should be based on assumptions that have been scientifically tested reproduces the long-held western myth that cultures can progress only when they adopt the high-status knowledge of the West. If Wilson were to be consistent in his extrapolations, he should be arguing for cultural diversity, just in case a scientifically based culture is unable to adapt to future environmental changes.

This criticism of Wilson is likely to take most readers by surprise, as he continually writes about the importance of biodiversity to our future survival. His writings on the importance of biodiversity are both eloquent and well documented. If one only reads the final chapter of Consilience where Wilson discusses the different dimensions of the ecological crisis, and even expresses deep reservations about the genetic engineering of human traits, he comes across as one of the nation's preeminent environmentalists. His work with Nature Conservancy further strengthens this impression. But his extrapolations on the theory of evolution, particularly his reductionist explanation of culture, raises serious questions about whether he has created a powerful metanarrative (ideology) that will be used by the promoters of economic and technological globalization. I think, on balance, that his extrapolations will further strengthen the integration of scientific research into the corporate culture that is the engine driving the globalization of the western mind-set that equates consumerism with success and happiness. His writings also give legitimacy to the western idea that winners are the fittest—an idea that has its roots in an earlier phase of Darwinian thinking about the fate of cultures that were being colonized. To reiterate a point that Wilson continually makes, the reproductive success of future generations is the ultimate test of genetic fitness—which to the public and heads of corporations sounds like another way of saying that Nature dictates the “survival of the fittest.” It is interesting that Wilson avoids using this phrase,

but nevertheless gives it a renewed sense of legitimacy. Let me be more specific about why Wilson's contribution to an ideology that justifies the globalization of what has become an increasingly science based corporate culture will overshadow the contributions he makes as a spokesperson for conservation. In what follows I will identify a number of double binds in his reductionist thinking, and in his inability to recognize the limits of the theory of evolution as an explanatory framework.

Evolutionary Advantage of Western Science. Wilson's statement about the greatest divide being what separates pre-scientific from scientific cultures, as well as his many other references to the backwardness of non-western cultures, has special significance for environmentalists. It justifies, for example, the current efforts on the part of transnational corporations, neo-liberal politicians, and scientists whose research is increasingly dependent upon the priorities of corporations to promote the western model of economic development as the panacea for lifting people out of poverty. What Wilson, as well as elite groups that believe survival depends upon the scientific knowledge of the West, do not recognize is that the dominant patterns of western culture are poorly adapted to maintaining the sustaining capacity of local ecosystems. As recent history have proven, the technological and consumer dependent lifestyle of the West requires the continual exploitation of the bioregions of other cultural groups.

Many of the cultures that Wilson and others want to see displaced by the Enlightenment traditions of the West have developed in ways that enable them to live within the limits and possibilities of the local environments. The Zapatistas of Southern Mexico, the Quechua living in the Peruvian Andes, and other indigenous cultures spread across North and South American—as well in other parts of the world, possess both a complex knowledge of local ecosystems as well as intergenerational traditions that renew the principles of moral reciprocity that limit their impact on natural systems. As these cultures are pressured to modernize by adopting the forms of knowledge that Wilson upholds as more evolutionary advanced, they become more individually and consumer oriented—and environmentally disruptive. In determining which form of culture is better adapted to its environment, I suggest the reader learn about the cosmovision of the Quechua living in the diverse ecosystems that make up the Peruvian Andes. What is particularly interesting is that their world view has led to one of the most genetically diverse food production regions in the world. Their careful observation of changes in every aspect of their environment, as well as their way of understanding that all relationships that make up the natural world involve both nurturing and being

nurtured, stands in sharp contrast to Wilson's reductionist, survival oriented, and mechanistic science. I am not suggesting here that we can or should adopt the Quechua world view, which has sustained them over eight to ten thousand years. Rather learning about the complexity of Quechua knowledge of local ecosystems, and the cultural patterns that enabled them to foster and sustain biodiversity in one of the more challenging regions of the world, will help bring into question Wilson's claim about the backwardness of "pre-scientific cultures," and his willingness to see them disappear. Many other indigenous cultures, as we are beginning to learn, could also be cited as examples of being ecologically-centered in ways that cultures based on western science are not.

Evolution as an Ideology. Wilson's extrapolations on the theory of natural selection cover a wide range of cultural phenomena. They include: pre-scientific cultures are poorly adapted to their environments, moral values and religions are biases in mental development that are encoded in the genes, the brain is a product of natural selection, and the basic drive in life is to survive longer and to leave more offspring. While these claims appear to give scientific legitimacy to academics and other experts who are now explaining everything from cultural trends to individual behaviors as shaped by the role that genes play in the process of natural selection, none of the above extrapolations are based on scientific evidence. Causal relationships in the symbolic nature of culture-- specifically the complex interplay between the episteme of a cultural group, the languaging processes that sustain the shared meta-cognitive schemata, and the individual's sense of self-identity and meaning that both reproduce and individualize the shared cultural patterns—cannot be empirically established without introducing fundamental misrepresentations. Nevertheless, Wilson's every pronouncement, no matter how problematic, is given public exposure—often in leading magazines such as The Atlantic Monthly and in scientific journals. The miseducation of the public is being furthered by proponents of computers who explain technological developments as guided by the process of evolution. Psychologists are aligning their professional judgments with the new scientific orthodoxy that Wilson has pioneered by explaining a range of human behavior as genetically based; while anthropologists are finding that cultural developments represent efforts to preserve the group's genetic material. Even art is now being explained as an adaptive behavior that, as Ellen Dissanayaka puts it, "has survival value" (1992, p. 35). In effect, Wilson's extrapolations are helping to renew an explanatory framework that is presumed to have a scientific basis, and thus is being given the special status where criticism is viewed as unwarranted and the expression of anti-Enlightenment thinking.

A totalizing explanatory framework, especially one that appears to be grounded in science and promoted by academics who, by virtue of their institutional positions, determine what constitutes high-status knowledge, becomes a powerful ideology made to order for those who want to promote the latest technology and to open up new consumer markets. In contrast to Darwin's theory, which emphasizes that the survival value of behavioral traits is determined over many generations, the proponents of modernization read the process of natural selection into every situation where a new technology displaces technologies and other cultural traditions that have survived with only minor modification over many generations. For example, electronic communities are now being interpreted as more advanced than face-to-face communities. Similarly, globalizing an industrial mode of production and consumption is being explained as more evolved than self-sufficient and non-monetized cultures. And the prospects of genetically designed offspring is being viewed as putting the process of natural selection in the hands of experts who will eliminate the element of chance. This transformation of Darwin's theory can also be seen in Lee Silver's prediction that genetic engineering will soon lead to humans evolving into two distinct species. This Princeton University molecular biologist envisions the genetically planned offspring becoming a separate "Gene-Rich" species of humans, while the non-genetically planned will evolve as the "Naturals" who will perform the service and hard labor functions in society (1997, pp. 4-7).

Wilson's contribution to turning the theory of evolution into an ideology (that is, helping to revive the nineteenth century ideology of "survival of the fittest") retains key conceptual elements that were the underpinnings of the Industrial Revolution and the colonizing process that it required. These include the idea that the basic drive is to survive in an environment that rewards winners and eliminates losers; that scientifically based technologies are more evolved than technologies that are more integrated into the web of community life and require greater skill on the part of the user; that values (which may involve cooperation within the family or corporate unit that compete with other units) should be judged on the basis of their survival value; and that "evolution" is the scientist's special word for what modern thinkers call progress. As these are the assumptions that underlie the western model of technological and economic development that has had such an adverse impact on the environment over the last two-hundred and fifty years, environmentalists need to ask whether Wilson's sociobiology outweighs in importance his contributions as an advocate of biodiversity.

Extinction of Pre-Scientific Cultures. Wilson's reading of the Rosetta Stone of evolution strengthens the popular bias that non-western cultures are backward, and in need of being

transformed in ways that correspond to the western form of consciousness. Wilson does not provide scientific evidence, but asserts, as noted earlier, that the greatest divide facing humanity is between the pre-scientific and scientific cultures. In effect, his argument that the natural sciences should be the unifying basis of all forms of knowledge, as well as his claim that science should be the final arbiter of religious insight, put him on the side of those who equate progress with the creation of a world monoculture.

The double bind in Wilson's efforts to establish the world-wide primacy of scientifically based knowledge is that it leads to undermining the linkage between cultural and biodiversity that is just now being understood by environmentalists. Wilson's desire to see the disappearance of cultures he categorizes as "pre-scientific" leads to the loss of languages that are astonishing complex repositories of knowledge of local ecosystems. Australian Aborigines, for example, have encoded in their language and ceremonies such a wealth of knowledge of the interrelationship of plants, animals, weather patterns, and physical characteristics of the landscape that Australian government scientists have asked them to provide maps that indicate the edible flora and fauna, and explain their nutritional value. The Kapingamarangi islanders of Micronesia, according to linguists David Nettle and Suzanne Romaine, vary their fishing activity evenly over 200 indigenous varieties of fish, thus ensuring that no one variety is faced with extinction. Nettle and Romaine also cite the example of the Haunoo who live on the island of Mindaro. These "pre-scientific" people can identify 450 species of animals and over 1500 local plants; they also cultivate as many as 450 different plants in their gardens—with many of the plants having known medicinal value. The farming practices of the Haunoo take account of the 10 basic and 30 derivative types of soil. Their language also includes 4 different terms for soil firmness (Nettle and Romaine, 2000, pp. 71, 166-167). The Quechua of the Peruvian Andes represent yet another example of a supposedly pre-scientific culture that Wilson would like to see transformed by the adoption of science as their sacred narrative. For over eight thousand years the Quechua cosmovision has represented life processes as a reciprocal dialogue between humans, deities, and nature. Their understanding of all life processes as essentially nurturing relationships has enabled them to turn the diversity of ecological niches and microclimates that characterize the Andes into one of the world's greatest centers of diversity of cultivated plants. They grow over 1500 varieties of quinoa and over 3500 varieties of potatoes. Other examples that fit into Wilson's category of pre-scientific culture could easily be given.

Given Wilson's knowledge of the importance of biodiversity, it is surprising that he ignores the wealth of evidence now emerging from scientific studies of the complex and accurate knowledge of local ecosystems possessed by many indigenous cultures. Had he taken this into account, his theory of the epigenetic basis of cultural patterns, including his reductionist sub-theories about the genetic basis of brain activity and language, would not have had the conceptual coherence he needed for his argument that scientifically based cultures are better adapted to meet the challenges of long-term survival. There is another reason for this critically important oversight. His mechanistic understanding of the brain, along with his need to explain the epigenetic rules governing the possibilities of language, prevent him from recognizing that the mythopoetic narratives of these diverse cultures are the basis of their way of knowing—which includes their ways of understanding relationships and the way relationships are represented in a metaphorical language that is intergenerationally shared.

The reason for Wilson's failure to understand how the meta-cognitive schemata (what I have elsewhere called root metaphors) of a cultural group influences how relationships are understood is his rigid embrace of the "genes determine culture" argument. Witness how in the following statement he attempts to give culture a co-evolutionary role, but ends up reasserting the "realities of human evolution argument"—which includes the whole package of assumptions about genes giving rise to individual behaviors and cultural traits that are better adapted for long-term survival. I will quote Wilson here to ensure readers that I am not misrepresenting him on this crucial issue.

The brain constantly searches for meaning, for connections between objects and qualities that cross-cut the senses and provide information about external existence. We penetrate that world through the constraining portals of the epigenetic rules. As shown in the elementary cases of paralinguistic and color vocabulary, culture has arisen from the genes and forever bears their stamp. With the invention of metaphor and new meaning, it has at the same time acquired a life on its own. In order to grasp the human condition, both the genes and culture must be understood, not separately in the traditional manner of science and the humanities, but together, in recognition of the realities of human evolution. 1998, 163

Had Wilson extended the discussion of metaphor to take account of the layered nature of metaphorical thinking, including how material culture is also the expression of metaphorical thinking, he might have recognized that his own explanation of organic processes, such as how

genes perform and the activities of the brain, is framed by his reliance upon a mechanistic root metaphor.

Science and the Evolutionary Epic as the Source of Values. Wilson's transformation of the theory of evolution into an ideology that is to guide the world's cultures raises the question about the ability of science as a mode of inquiry, and scientists who are unconsciously influenced by the assumptions of their own culture, to establish the moral values that are to put human/nature relationships on a more sustainable basis. Wilson clearly thinks that evolution has now carried humankind to a new level of moral development. But beyond asserting that the non-secular and non-scientifically based cultures should abandon their mythopoetic narratives in order to accept what evolutionary biologists certify as the "bedrock of moral and religious sentiments," Wilson has little to say about how to affect this change. His silence about an effective strategy for carrying out the changes he sees being dictated by evolution is particularly noteworthy in a world where the mythopoetic narratives of different cultures are increasingly at the center of political conflict.

He may, however, have another reason for remaining silent on this crucial issue. He may simply assume that the genes that predisposed the members of different cultures to create moral norms, and the mythopoetic narratives that give them legitimacy, may over time give way to genes that predispose them to live by moral norms better suited to surviving the ongoing process of natural selection. Thus the better adapted genes that Wilson sees as the basis of the epigenetic rules will simply solve the problem by replacing the unfit moral norms with those that meet the test of Darwinian fitness. According to Wilson's genocentric arguments, environmentalists and others who think that rational discussions that take account of the cultural forces that adversely impact the Earth's ecosystems, the quest for more ecologically-centered metanarratives, and eco-justice oriented educational reforms can make a difference simply do not understand that Nature's ways do not always fit what humans desire for the future. Given the deeply moral nature of Wilson's thesis, I don't think he is willing to accept the conclusions that follow his arguments about the "realities of human evolution."

But I have concerns that go beyond Wilson's naïve understanding of how to change the deep cultural foundations of the value systems of different cultures. These concerns also go beyond the question of whether he has adequate evidence for his claim that "culture is created by the communal mind, and each mind in turn is the product of a genetically structured brain" (1998, p. 127). My concerns have to do with scientists as individuals who, in learning to think and communicate in the

language patterns of their culture, unconsciously reproduce the assumptions of their culture in those areas where scientific discoveries are being translated into technologies, where individual scientists explain the social value of their discovery, and where they predict how their discoveries will change the future direction of the culture. While Wilson represents scientists as engaged in a dialectic involving rational thought and empirical evidence, the historical record of scientists as exemplary moral agents and futurist thinkers is mixed. We are all aware of how their research and, in many cases, personal sacrifices have improved the quality of human life and expanded our knowledge of the physical world. But like Janus, the two faced Roman god that looks in opposite directions, the history of the scientific community also has a Janus face. That is, scientists as a community of scholar/researchers have made contributions that have been constructive, and contributions that have been destructive—even environmentally destructive.

If we look at the historical record of the scientists that Wilson wants to put in charge of aligning moral values of the world's cultures with the way he understands the genetic-based evolutionary origin of moral and religious beliefs, we find the following: (1) Scientists have in the past and continue today to be the source of basic knowledge that enabled the Industrial Revolution, and the digital phase it has now entered, to expand on a global scale; (2) Scientists have provided the knowledge for the development of weapons of mass destruction. That some scientists now oppose the use of the more destructive weapons does not change the fact that scientists have not always exercised the high wisdom that Wilson assigns them; (3) Scientists, as Stephen Jay Gould pointed out in *The Mismeasure of Man* (1981) were major contributors to intelligence testing and supported the racist assumption it was based on; (4) Scientists in the early part of this century were deeply implicated in the eugenics movement, and they are continuing to support the basic assumptions of this movement today with their drive to find the genetic basis for eliminating human abnormalities—which goes well beyond the elimination of diseases by placing the scientists and their clients in the role of defining what constitutes normality; (5) Scientists have introduced into the environment tens of thousands of synthetic chemicals as a fix for certain problems but without an adequate understanding how the chemicals interact with other chemical processes upon which various life forming systems depend. The myth of progress rather than what is now called the “precautionary principle” has been the basis of their social and ecological awareness. Fortunately, this is beginning to change. But we are now witnessing another development that raises the question of whether scientists are capable of being the superior moral guides that Wilson represents them as.

The merging of scientific research with corporate agendas, including the growing practice of scientists seeking personal economic gain through their research, is increasing their complicity in the process of economic and technological globalization that further threatens the viability of the Earth's ecosystem—and what remains of the self-sustaining capacity of cultures that have not yet been pulled entirely into the West's new colonial system.

These criticisms of scientists are not meant to diminish the important contributions they are making in many areas of life—including a more accurate understanding of the rate and scale of changes occurring in natural systems. But we cannot forget that the technology dependent, consumer driven lifestyle now being globalized had its roots in earlier scientific achievements. The hubris of western scientists, including the way in which they have denigrated knowledge systems based on non-western assumptions, is partly responsible for our failure to learn from ecologically-centered cultures the importance of extending moral reciprocity to the natural world. Aldo Leopold's *A Sand County Almanac* (1949) represents one of the first efforts in the West to articulate a land ethic. While it represents an eloquent and compelling statement, it has not been incorporated into our ceremonies and taken-for-granted patterns of daily life. Today's reality is that title of Carl Sagan's book, *The Demon-Haunted Word: Science as a Candle in the Dark* (1997) expresses more accurately the hubris toward what Wilson refers to as pre-scientific cultures. The current effort to patent indigenous knowledge of biodiversity (that is, to exploit it as another resource in the industrial process) is yet another example of the failure of western scientists to provide moral leadership in sustaining the cultural diversity that is so essential to the viability of biodiversity. The scientists' current role in the appropriation of indigenous knowledge for industrial purposes, which they justify in the name of progress, represents a continuation of over a two hundred and fifty year collaboration between scientists and industry—a collaboration that has undermined the ability of many species to ensure the survivability of their genetic material. This collaboration is totally ignored by Wilson. Indeed, his arguments for making scientists the guardians of the world's moral values ignores the long history of destructive and morally problematic projects that should be laid out along side the equally long history of positive achievements. But this more balanced view of the scientists' capacity as a moral leader is totally lacking in Wilson's thinking.

Wilson's argument that scientists should take on the Promethean role of saving the diverse cultures of the world from the consequences of their pre-scientific knowledge systems led Wendell Berry to write a devastating critique of what he calls the "explicitly imperialistic" nature of Wilson's

faith in the “ultimate empirical explainability of everything” (2000. P. 30). As Berry put it in The Miracle of Life: An Essay Against Modern Superstition, “ Wilson himself, in his conviction that everything that is not science out to be and will be, shows himself to be a man with a fiercely proprietary mind and dire intentions toward the unenlightened. The logic of his position is clear and it is most disquieting” (p. 31).

Ecological Implications of Science as an Anti-Tradition Tradition.

Any assessment of Wilson’s contribution to creating a more ecologically sustainable culture must also take into account the scientists’ knowledge of their own culture, as well as that of other cultures. When Wilson claims that scientists “will test relentlessly every assumption about the human condition and in time uncover the bedrock of moral and religious sentiments (1998, p. 265) he is assuming that scientists possess superior knowledge and that they should take on the Promethean role of rescuing people from their misconceptions. But one of the characteristics of the human condition, regardless of cultural group, is that it involves dependence upon traditions. As most traditions are a taken-for-granted part of daily experience, the challenge is to recognize traditions that are essential to civil society and less consumer driven lives, that are no longer useful, and that were wrongly constituted in the first place. The ecology of traditions, which includes all aspects of culture passed down and re-enacted over four generations or cohorts, represents the intergenerational continuities within a culture. Science as a mode of inquiry, and the technologies and ideology it relies upon, are also examples of traditions. But as Edward Shils points out, science is a tradition that has as its primary purpose the overturning of traditions that do not meet the test of new scientific discoveries. That is, science is what Shils calls an “anti-tradition tradition” that has its roots in Enlightenment thinking. As an anti-tradition tradition, science has led to important changes in ways of thinking and in the development of highly useful technologies that have become new traditions. It has also been the basis of new traditions that we are now recognizing as environmentally destructive, such as farming techniques that overly rely upon chemical pesticides and fertilizers, the over prescribing of drugs, and the practice of seeking a technological solution to environmental problems rather than changes in cultural values and ways of thinking. The list of more ecologically sustainable cultural traditions undermined by scientifically based technologies includes how the Green Revolution undermines the indigenous knowledge of how to adapt agricultural practices to the characteristics of local ecosystems, the displacement of craft knowledge by the industrial mode of production, the undermining of mentoring relationships and embodied

experiences of place by computer mediated communication, and the marginalization of intergenerational knowledge and skills by market oriented techniques that are based on scientific knowledge of how to shape human expectations and to create greater efficiencies in market activities. Indeed, the process of globalizing western traditions of industrially produced foods, clothes, modes of communication, and so forth, is dependent upon western science, and these western traditions not only undermine local traditions of self-sufficiency but also foster a cultural ecology of constant change in consumer expectations and technological innovation.

The problem with Wilson's recommendation that scientists should decide what values and cultural practices people should live by is that scientists, as a group, are among the least qualified to make decisions about which traditions are essential to morally coherent and ecologically sustainable cultures. As pointed out above, their conceptual orientation is toward introducing new technologies and ways of thinking. Aside from personal experience, which is mostly experienced as taken-for-granted background knowledge, they have no expert knowledge of which traditions are especially important as sources of self-sufficiency, nor have they demonstrated a special awareness of the importance of traditions that are being undermined or entirely lost as a result of the technologies that new scientific discoveries give rise to. For example, scientists as a group have not resisted the loss of the tradition of privacy, including freedom from governmental surveillance, which computers now make possible. Nor have they been concerned about the loss of the traditions dependent upon face-to-face intergenerational communication that are also being undermined by computer technologies.

If Wilson were to be consistent in his argument that genes determine brains and thus culture, and that natural selection determines which genes contain the chemical instructions best suited to the survival of future generations of the organism, the process of determining which beliefs and cultural practices should survive would be left to Nature and not be placed on the shoulders of scientists. As pointed out earlier, Wilson's political agenda is to create a world monoculture based on the thinking of scientists who have made essential contributions to the earlier and, now, present phase of the Industrial Revolution—a revolution that has undermined cultures that have a smaller ecological impact and that has undermined the self-renewing capacity of natural systems.

Wilson's division of human evolution into what he called the "greatest divide," the "chasm that separates scientific from prescientific cultures" (1998, p. 45), as well as his arguments for replacing the world's religions with the scientific narrative of human evolution, seems strangely at odds with his biophilia hypothesis. His call for the cultures of the world to adopt the scientific

narrative as their secular religion, is really a call for a world monoculture. At the same time his biophilia hypothesis, which is also without a scientifically established basis that takes account of cultural differences, is that human evolution has led to the genetic basis of human preferences for and affiliations with life forming processes. His hypothesis also claims that biophobic (adversive) responses on the part of humans toward environmental destruction can also be traced to the process of human evolution. If Wilson had tried to reconcile his arguments for a world monoculture based solely on scientifically based knowledge with his biophilia hypothesis he would have been faced with explaining why he wants to impose a scientifically based epistemology and moral system on indigenous cultures that have “evolved” to the point where their technologies, ceremonies, patterns of moral reciprocity, and place-based knowledge are expressions of human affiliation with the life forming processes that make up their bioregion. It may be that Wilson, in recognizing that his arguments about natural selection and the long history of disclaimers about science being separate from values, realized that he would need to come up with a theory that explains the genetic basis of an environmental ethic. But he overlooked the historical record of western science, and how it has been justified on the grounds that it would enable man to subdue nature, to exploit it as a resource, and to find substitutes for systems that disappear. In effect, he argues for universalizing a mode of inquiry, and the economic system dependent upon it, that show far less evidence of the qualities he associates with biophilia. Indeed, Wilson’s reference to the brain as a machine, as a problem in engineering, suggests that, in spite of the fame that has come to him because of his theory of biophilia, his thinking is still in the tradition of science that treats nature as an object of study, exploitation, and experimentation. These are hardly the qualities that he associates with biophilia.

It has only been in the last three or so decades that scientists have become widely concerned about changes in natural systems, while their record of helping to incorporate nature into the industrial, monetized culture goes back hundreds of years. And even today, there are scientists who are still working to incorporate natural processes into an industrial mode of production and consumption. While the growing concern about achieving scientific knowledge of changes in natural systems, and developing technologies that mitigate the human impact, represents an important development, there is little evidence that scientists have begun to think about the interconnections between the mythopoetic narratives of different cultures and the traditions that make them less dependent upon consumerism—which is one of the main threats to the environment—and thus to the survivability of the genetic material of different species.

In summary, Wilson's good intentions, and even his genuine concern about conserving biodiversity, are less significant than the support his extrapolations on the theory of evolution give to the promoters of a world monoculture based on a western consumer dependent lifestyle. Wilson has made important scientific contributions and has been given wide acclaim. But the fatal flaw in his thinking is that he does not recognize the deep cultural assumptions that limit his ability to recognize when he has stepped beyond the boundaries in which he is knowledgeable. And he does not understand how his taken-for-granted cultural assumptions lead to recommendations that work against his genuine concern about the survivability of humankind. While Wilson could be justifiably accused of having a Promethean complex, he should be understood as embodying the limitations that characterize most scientists: that is, the failure to understand how their activities impact the cultures of the world. Yet, the education that most scientists receive ignores this increasingly important limitation. Rather, it reinforces the ideology that represents scientific inquiry as free of cultural influences. This education also reinforces an even more destructive myth, namely that the scientist is not responsible for how society turns scientific discoveries into new technologies and systems of control. The problematic nature of this ideology can be seen in the self-certainty (indeed, hubris) of Martin W. Lewis who states:

As a self-professed environmentalist, I fully concur that the passage into the twenty-first century sees the world in a state of ecological crisis. I further agree that much of the blame must be assigned to technologies that owe their existence to the success of Enlightenment thought. But I am also convinced that a wholehearted commitment to reason and science offers the only way out of the dilemma. *Only through scientific investigation can we know the origin and magnitude of the planet's problems.* But of equal significance is the fact that only through science can we devise less harmful technologies that will allow us to continue to enjoy the fruits of modernity—which twentieth-century humans will not forswear, no matter how urgent the pleading—without undercutting natural systems in the process. Gross and Levitt, 1996, p. 210 (italics added)

Again, we see the double bind. To paraphrase Lewis, the mind-set that has been a major contributor to the ecological crisis is the only mind-set capable of saving humanity. Like Wilson, Lewis' representation of the scientist as a modern Prometheus omits the importance of understanding culture in all its dimensions and diversity. The problem is that the language of science, and the ideology

that legitimates its higher-status, is inadequate for understanding the cultural limits of scientific expertise.

References

- Apffel-Marglin, Frederique (editor with PRATEC). 1998. The Spirit of Regeneration: Andean Culture Against Western Notions of Development. London: Zed Books.
- Berry, Wendell. 2000. Life is a Miracle: An Essay Against Modern Superstition. Washington, D.C.: Counterpoint.
- Gould, Stephen Jay. 1981. The Mismeasure of Man. New York: W.W. Norton.
- Dissanayaka, Ellen. 1992. Homo Aestheticus: Where Art Comes From and Why. New York: Free Press.
- Kelly, Kevin. 1994. Out of Control: The Rise of Neo-Biological Civilization. Reading, Mass.: Addison-Wesley.
- Kurzweil, Ray. 1999. The Age of Spiritual Machines: When Computers Exceed Human Intelligence. New York: Viking Press.
- Leopold, Aldo. 1966 edition. A Sand County Almanac. San Francisco: Sierra Club/Ballantine Book.
- Lewis, Martin W. 1994. "Radical Environmental Philosophy and the Assault on Reason." Pp. 209-230 in The Flight from Science and Reason, ed. Paul R. Gross, Norman Levitt, and Martin W. Lewis. New York: New York Academy of Sciences.
- Lewontin, R. C. 1992. Biology as Ideology: The Doctrine of DNA. New York: Harper Perennial.
- Moravec, Hans. 1988. Mind Children: The Future of Robot and Human Intelligence. Cambridge, Mass.: Harvard University Press.
- Nettle, Daniel, and Suzanne Romaine. 2000. Vanishing Voices: The Extinction of the World's Languages. New York: Oxford University Press.
- Sagan, Carl. 1997. The Demon-Haunted World: Science as a Candle in the Dark. London: Headline Book.
- Silver, Lee. 1997. Re-Making Eden: How Cloning and Beyond Will Change the Human Family. New York: Avon.
- Stock, Gregory. 1993. Metaman: The Merging of Humans and Machines into a Global Superorganism. Toronto: Doubleday Canada.

Wilson, E. O. 1998. Consilience: The Unity of Knowledge. New York: Alfred A. Knopf.
 _____. 2000. Sociobiology: The New Synthesis. Cambridge, Mass.: The Belknap Press of
 Harvard University Press.

Chapter 3 The Environmental Ethic Implicit in Three Theories of Evolution

In Educating for Eco-Justice and Community (2001), I briefly discuss the pitfalls of using evolution as a conceptual framework for recommending educational reforms. While my book was in the early stages of being reviewed, Edmund O’Sullivan’s Transformative Learning: Educational Vision for the 21st Century (1999) appeared. O’Sullivan’s book is significant for a number of reasons. But the two most important are that it represents one of the first books written by a theorist deeply rooted in the tradition of critical pedagogy that addresses the cultural changes being forced upon the world by the ecological crisis. Second, the conceptual framework he uses is based on the Brian Swimme/Thomas Berry interpretation of evolution—or what they call the “universe story.” It should also be said that O’Sullivan’s extrapolations on the Swimme/Berry interpretation are insightful, well supported by other writers who share a holistic view of the relationship between humans and Nature, and persuasively argued.

My purpose here is not to critique Transformative Learning, but to fame the discussion on another level—one that returns to the concerns I raised in my earlier discussion of the limitations of using a theory of evolution to explain cultural developments. I should say “theories” of evolution as there are, among others, three prominent theories that have profoundly different political implications. In a world where there are still approximately 6000 different languages still spoken (with many of the verge of extinction), and thus an equal number of world views, the vast differences in ways of knowing now under pressure from globalization create yet another set of issues being ignored by the theorists promoting the three schools of evolutionary thought that will be examined here.

The critical questions that need to be asked by any educational theorist who relies upon one of the three theories of evolution are: “Which one is the most scientifically based?” and “Which one most effectively accounts for the diversity of the world’s cultures—particularly the cultures that have developed ecologically sustainable beliefs and practices?”. The answer to these questions, as I will

attempt to show, will help to clarify a characteristic shared by all three interpretations of evolution: namely, how they lend ideological support to the western approach to creating a world monoculture. That is, the answer to these questions will bring out the double bind of how using a theory of evolution to address ecological problems can, at the same time, legitimate the cultural practices that are the greatest threat to ecological sustainability.

Assessing the ideological and ecological implications of three different interpretations of evolution brings into focus a number of issues that educational theorists, as well as other reform-minded thinkers, should consider. As there are fundamental differences between the three accounts of evolution, the question of which one is valid becomes a central concern. There is also the question of whether the three accounts of evolution avoid the limitations of the Social Darwinism of the late nineteenth century. Additionally, there is the question of whether an evolutionary based explanatory framework makes both the educational and political processes we associate with a democracy little more than misguided thinking. In light of Kevin Kelly's observation that Nature's agenda is "out of our control" (1994, p. 471), the ideal of an educated citizenry being essential to a democratic society may not fit Nature's agenda for ensuring the survival of the fittest. Before examining the three interpretations of evolution being given prominence by different groups, it must be acknowledged that important debates among evolutionists, such as the one precipitated by the field research of Stephen Jay Gould, will not be considered. Nor will the arguments that a Darwinian interpretation of evolution ignores that the universe and the Earth's organisms are too complex to be explained by the interplay of mutations and the selective power of the environment, and thus that the evolution is thus the outcome of intelligent design (i.e. God).

Entering the Post-Biological Phase of Evolution

The power of computers has led to many predictions of how they will change life in the future, such as reproducing human emotions, becoming an auxiliary brain, and providing for instant language translations. Perhaps the most important prediction is that computers represent the next phase of evolutionary development, which will lead to a post-biological world monoculture. Hans Moravec, the principal research scientist at the Robotics Institute at Carnegie Mellon University, announced in 1988 that we are now entering a "post-biological world dominated by self-improving, thinking machines" (p. 5). More recently, he wrote in the End-of-the Millennium Special Issue of Scientific American, that by 2040 "we will finally achieve the original goal of robotics and a thematic mainstay of scientific fiction: a freely moving machine with the intellectual capacity of a

human being” (1999, p. 126). The evolutionary advantage of computers over humans, as he pointed out, is that computers are capable of mental calculations millions of times faster than the human brain. With the evolution of intelligence being taken over by computers, Moravec predicted that the evolutionary dead-end for humans will be a Nevada style Sun City existence. As he put it, humans “will probably occupy their days with a variety of social, recreational and artistic pursuits, not unlike today’s comfortable retirees or wealthy leisure classes” p. 135.

Given the highly specialized nature of education experienced by most computer scientists, it should be no surprise that Moravec is not the loan Promethean thinker who holds out the promise that the future fate of humans will no longer be dependent upon the flawed thinking of politicians and despots, but will be determined by Nature’s process of natural selection—which will ensure that the best and most deserving will survive. George Dyson, author of *Darwin Among the Machines* (1997) and son of Nobel Prize recipient Freeman Dyson, explains how Nature rewards the “fittest.” By “fittest” Dyson means the “most economical and efficient processes for encoding information” that are the basis of life sustaining processes. The following quotation needs to be read in the context of the subtitle of his book, which is “The Evolution of Global Intelligence.”

Biology and technology evidence parallel tendencies toward collective, hierarchical processes based on information exchange. As information is distributed, it tends to be represented (encoded) by increasingly economical (meaningful) forms. This evolutionary process, whereby the most economical or meaningful representation wins, leads to a hierarchy of languages, encoding meaning on levels that transcend comprehension by the system’s individual components—whether genes, insects, microprocessors, or human minds....Nature, in her boundless affection for complexity, has begun to claim our creations as her own. 1997, p. 7-8.

While Dyson does not use the vocabulary of classical liberal thinkers, or that of the promoters of the World Trade Organization, he nevertheless gives the impression that the classical liberal worldview is supported by the scientifically based theory of evolution. It is also important to note how Dyson merges the categories of biological organisms and machines, which previously have been understood as separate. This aspect of Dyson thinking is becoming an increasing conventional trait among a wide range of scientists. Dyson’s extension of the theory of natural selection to explain technological developments governed by the same design criteria Nature uses in the natural world is also critically important. In effect, he opens the door to explaining all aspects of culture, and thus the

development of different cultures, as governed by the laws of natural selection. The argument that the better adapted are selected to survive, and to reproduce themselves through future generations, makes politics little more than a theatre of illusions and impossible expectations.

Another point that needs to be brought out is that Dyson should have recognized that his last statement about Nature’s “boundless affection for complexity” is inconsistent with his main thesis—namely, that evolution is leading to a global intelligence. That is, in the case of human evolution, the complexity of different cultural ways of knowing, which are adapted in many instances to the characteristics of their bioregion, is to be replaced by a machine mediated global intelligence. In other words, cultural evolution is to be guided by an opposite set of design criteria.

Gregory Stock also presents a picture of an evolutionary process that leads from a wide array of tradition-oriented cultures to a hybrid of computer and biological processes he calls “Metaman.” Holding a Ph.D. in biophysics from Johns Hopkins University, Stock lays out the evidence of an evolutionary process, which moved from diverse cultures dependent upon a human brain and augmented by intergenerational knowledge to a global form of intelligence. Unlike Dyson, Stock is aware of cultural differences. But he brings the prejudices of the scientist, as well as those of the modern urban thinker, to his interpretation of them. The following quotations both provide the evidence he uses to justify his claim that we are evolving a global intelligence, and the stages of its development.

Toward Global Culture

A few centuries ago, the world brimmed with rich, distinctive cultural traditions. Not only were Zulus, Eskimos, Maoris, and other nature cultures still largely isolated from outside influences, but differences between developed lands were pronounced. Today such diversity is mostly a thing of the past. 1993, p. 99

Human-Machines Hybrids

As the nature of human beings begins to change, so will concepts of what it means to be human. One day humans will be composite beings: part biological, part mechanical, part electronic.... p. 152

The human ‘form’ will instead come to represent a broad variety of potent hybrids between biology and technology—beings that can only survive with Metaman. p. 171

From Human Brain to Global Mind

Continually sensing, transferring, and manipulating information, Metaman does more than just shuffle and store data. Metaman interprets and processes it. In essence, Metaman actually ‘thinks’ by using a ‘brain’ that is literally all around us. And that brain contains within it the functional equivalent of the global ‘memory’ housing all humanity’s accumulated knowledge. 1993, pp. 84-85.

Scientists supposedly only deal with facts derived from empirical evidence, and leave to others the non-empirical realm of values. But this is not the case with Stock. He uses evolution, and thus the authority of science, to cloak a series of value judgments that have important ideological implications.

For example, his statement about cultural diversity being a thing of the past is not based on scientific evidence, but represents a value laden interpretation that reflects the western assumption that development is a linear process—moving from a wide range of indigenous cultures to a progressive, technologically developed modern culture. In effect, Stock is attempting to give scientific legitimation to a continuation of the western project of global colonization. Instead of using the godwords of “progress” and “modernization,” he uses the supposedly non-political language of evolution to explain how Metaman will end up with a western, liberal/technologically oriented mindset.

The question that needs to be asked is: What is the scientific basis for the decision that the members of other cultures should not have a voice in deciding whether they want to be transformed by western technology into the futuristic hybrid envisioned by Stock? What scientific evidence exists that supports the claim that Metaman will be better adapted, and thus have a more sustainable future than the members of cultures that have accumulated a complex understanding of the limits and possibilities of their bioregions—and have developed over many generations complex ways of communicating this knowledge and the moral framework it is embedded in? Stock, like Moravec and Dyson, lacks an understanding of when science becomes an ideology, and how the ideology is rooted in liberal traditions of thinking.

Ray Kurzweil’s prediction of how computers are going to evolve beyond humans is even more remarkable—and disturbing. Like the others, his predictions must be seen as an indirect way of identifying what is worth preserving. His book, The Age of Spiritual Machines: When Computers Exceed Human Intelligence(1999), is based on the same assumptions held by the Moravec, Dyson, and Stock: namely, that humans will have no influence over their own relationship with technology;

that the diverse cultures are irrelevant to how the process of natural selection will select computers over humans as the unit of survival; and that the ecological crisis will play no part in the direction of evolutionary change. Kurzweil is equally silent about the importance of what cannot be digitized other than as an abstract text. The importance of face-to-face, contextual, and metaphorically layered ways of knowing unique to different cultures are totally irrelevant for the simple reason that they represent an evolutionary dead-end, like the dinosaur. According to Kurzweil, computers will have human-like personalities indistinguishable from people we know today. They will also have a human-like capacity for religious experience. As his techno-optimism seems too over the edge to have been taken seriously by a publisher, let alone intelligent readers, it is again necessary to read his predictions in his own words.

On downloading the human mind into a computer:

Objectively, when we scan someone's brain and reconstitute their personal mind file into a suitable computer medium, the newly emergent 'person' will appear to other observers to have very much the same personality, history, and memory as the person originally scanned. Interacting with the newly instantiated person will feel like interacting with the original person. The new person will claim to be that same old person and will have a memory of having been that person, having grown up in Brooklyn, having walked into a scanner here, and woken up in the machine there. He'll say 'Hey, this technology really works.' (1999, p. 125)

On the end of mortality:

Actually there won't be mortality by the end of the twenty-first century. Not in the sense that we have known it. Not if you take advantage of the twenty-first century's brain-porting technology. Up until now, our mortality was tied to the longevity of our hardware. When the hardware crashed, that was it. For many of our forebears, the hardware gradually deteriorated before it disintegrated....As we cross the divide to instantiate ourselves in our computational technology, our identity will be based on our evolving mind file....Our immortality will be a matter of being sufficiently careful to make frequent backups. If we're careless about this, we'll have to load an old backup copy and be doomed to repeat our recent past. (pp. 128-129)

On virtual houses of worship for spiritual machines:

Neuroscientists from the University of California at San Diego have found what they call the God module, a tiny locus of nerve cells in the frontal lobe that appears to be activated during religious experiences....When we can determine the neurological correlates of the variety of spiritual experiences our species is capable of, we are likely to be able to enhance these experiences in the same way we will enhance other human experiences. With the next stage of evolution creating a new generation of humans that will be trillions of time more capable and complex than humans today, our ability for spiritual experience and insight is also likely to gain in power and depth....Twenty-first century machines—based on the design of human thinking—will do as their human progenitors have done—going to real and virtual houses of worship, meditating, praying, and transcending—to connect with their spiritual dimension. pp. 152-153

If we were to take Kurzweil seriously, decisions about what needs to be conserved in order to live more ecologically sustainable lives will be made in the future by computers capable of updating their software in ways that take account of every micro and macro change in the layered and multiple ecosystems that are so complex that scientists are only now beginning to partially understand them. In effect, it doesn't matter how much humans misuse the environment, as computers will have the capacity to process trillions of bits of information and thus keep all human and natural systems in balance. Contrary to current pessimism about the efficacy of the political process to reach international agreements on curbing environmentally destructive practices, Kurzweil and the other techno-utopians hold out the promise that computers will shortly be taking over and, like a totally benevolent God, will restore the Garden of Eden to its original harmony. Indeed, they share Kevin Kelly's faith that while everything "out of our control" Nature will ensure that the fittest survive. In order not to leave the impression that computer scientists are the only ones with a special proclivity for expressing their hubris in ways that lead to interpreting evolution as having politically totalitarian implications, it will be useful to consider E. O. Wilson's more mainstream interpretation of evolution.

Gene-Culture Co-Evolution

While evolution is being increasingly used as the primary explanatory framework in disciplines as wide ranging as anthropology and psychology, we find the broadest claims being made on its behalf by E. O. Wilson who is being acclaimed as one of the nation's leading scientists and environmental spokesman. By extending the theory of evolution in ways that explain culture as having a genetic

basis, and thus guided by Nature's test of genetic fitness, his writings undermine the efforts of educational reformers to address the cultural roots of the ecological crisis. Thus, it is important to consider how his extrapolations support the cultural forces now undermining the self-renewing capacity of natural systems. It is also important to examine the double bind inherent not only in Wilson's thinking but in the futuristic prescriptions of other evolution-oriented scientists.

This critique of Wilson is not intended in any way to diminish the significance of his scientific research and publications. But his efforts to establish a new discipline of sociobiology, which is to provide empirical evidence of the biological basis of human behavior and cultural norms, is more problematic—and thus deserving of criticism. In the Twenty-Fifth Anniversary Edition of Sociobiology: The New Synthesis (2000), Wilson summarizes what is needed to make the final separation between scientific and pre-scientific knowledge.

To grasp human nature objectively, to explore it to the depths scientifically and to comprehend its manifestations by cause-and-effect explanations leading from biology into culture, would be to approach if not attain the grail of scholarship, and to fulfill the dreams of the Enlightenment....human nature as the epigenetic rules, the inherited regularities of mental development. These rules are the genetic biases in the way our senses perceive the world, the symbolic coding by which our brains represent the world, the options we open to ourselves, and the responses we find easiest and most rewarding to make. pp. vii-viii

As he puts it in Consilience: The Unity of Knowledge (1998), the genes that predispose people to think and act in certain ways are governed by the process of natural selection. While he appears to grant culture a role in the process of evolution by using the phrase “gene-culture co-evolution,” the reality, as he puts it, is that “the consistent guiding force is natural selection.” He goes on to explain that the “genes that confer higher survival and reproductive success on organisms bearing them, through the prescribed traits of autonomy, physiology, and behavior, increase in population from one generation to the next. Those that do not, decrease” (p. 129).

As this reductionist explanation has especially important implications for environmentalists and educators who are considering how different cultural beliefs and practices impact the environment, it is important that the conceptual foundations of what Wilson is representing as the new paradigm for understanding cultural change be examined more closely. In Consilience, he states that “today the greatest divide within humanity is not between races or religions, or even, as widely believed, between literate and illiterate. It is the chasm that separates scientific from

prescientific cultures” (p. 45). He goes on to claim that “science for its part will test relentlessly every assumption about the human condition and in time uncover the bedrock of the moral and religious sentiments” (p265). Scientific knowledge, which Wilson calls the “true scientific epic” thus provides the best chance of human survival. But human survival will require the religions of the world to adopt a secular interpretation of the human epic that is in accordance with the findings of science. In effect, Wilson is claiming that only a science-based religion will meet the test of natural selection.

Many of Wilson’s admirers in the environmental movement are likely to claim that he acknowledges that culture plays a role in process of human/cultural evolution. Given his environmental contributions, they are also likely to ignore the implications of his epistemological universalism: that is, that science provides the only legitimate pathway to knowledge. Given this tendency to ignore Wilson’s proclivity for sweeping generalizations, it is all the more important to consider closely how he explains the genetic basis of the mind, as well as the epigenetic rules that guide the formation of culture.

Wilson’s understanding of the mind is especially important. In his chapter on “The Mind,” he writes that “all that has been learned empirically about evolution in general and mental processes in particular suggest that the brain is a machine assembled not to understand itself, but to survive” (1998, p. 96). He goes on to claim that “the surest way to grasp complexity in the brain, as in any other biological system, is to think of it as an engineering problem” (1998, p. 102). His use of a mechanistic metaphor for representing the brain, as well as his suggestion that the brain needs to be approached as an engineering problem, needs to be considered within the context where the guiding values will be derived not from traditional religion, but from the “true evolutionary epic.” That is, the brain should not only be understood, but also engineered in terms of what contributes to survival within the long-term time frame that Nature requires to separate the fit from the unfit. While he does not advocate eugenics, his rejection of non-scientifically based values as well as his reference to thinking of the brain as an engineering problem certainly opens the door for scientists who want to speed up the rate of Nature’s design process.

Wilson’s explanation of the genetic basis of the epigenetic rules that filter and code stimuli in sense organisms, and guide the formation of behavior and culture, also needs to be challenged. As he explains it,

The genes prescribing the epigenetic rules of brain and behavior are only segments of giant molecules. They feel nothing, care for nothing, intend nothing. Their role is simply to trigger the sequence of chemical reactions within the highly structured fertilized cell that orchestrate epigenesis. Their writ extends to the level of molecule, cell, and organ. This early stage of epigenesis, consisting of a series of sequential physicochemical reactions, culminates in the self-assembly of the sensory system and the brain. Only then, when the organism is completed, does mental activity appear as an emergent process. The brain is a product of the very highest levels of biological order, which are constrained by epigenetic rules implicit in the organism's anatomy and physiology. 1998, p. 165, italics added

As I read this statement, the sequences of chemical reactions triggered by the genes prescribe the epigenetic rules that govern the self-assembly of the sensory system and brain. But following the statement where Wilson asserts that the brain is the product of the highest levels of biological order he introduces the idea of gene-culture co-evolution. Witness the constitutive role he assigns the brain, which follows the last sentence in the above quotation:

Working in a chaotic flood of environmental stimuli, it (the brain) sees and listens, plans its own future. By that means the brain determines the fate of the genes that prescribed it.

Across evolutionary time, the aggregate choices of many brains determine the Darwinian fate of everything human—the genes, the epigenetic rules, the communicating minds, and the culture. p. 165

These two segments of his explanation of the casual relationship between genes and the brain represent the most important paragraph in his book. First, it asserts without any scientific evidence that the brain, including all the activities of the brain –metaphorical thinking, memory, conscious awareness, the meta-cognitive schemata shared with other members of the culture, experience of meaning, value judgments, intentionality, sense of identity—are the product of physio-chemical reactions. Having made this claim, which would also have to account for differences in cultural ways of knowing, including all the brain implicated experiences listed above, he then reverses himself by stating that the aggregate choices of many brains determine the Darwinian fate of everything human—which he lists as the genes and epigenetic rules that he early describes as responsible for the self-assembly of the sensory system and brain

In Biology as Ideology (1992), R. C. Lewontin sums up the problematic logic of Wilson's sociobiology as “genes make individuals, individuals have particular preferences and behaviors, the

collection of preferences and behaviors make culture, and so genes make culture” (p. 14). Even though Wilson rejects being classified as a genetic determinist, Lewontin’s summary needs to be compared with Wilson’s own statement about “the genes prescribing the epigenetic rules of brain and behavior are only segments of giant molecules” (1998, p. 165). Wilson’s description of the “brain’s machinery,” and what he elsewhere describes as the “brain-machine, which is made up of cells, also needs to be taken into account in assessing the correctness of Lewontin’s summary. As Wilson put it,

What we call meaning is the linkage among the neural networks created by the spreading excitation that enlarges imagery and engages emotion. The competitive selection among scenarios is what we call decision-making. The outcome, in terms of the match of the winning scenarios to instinctive or learned favorable states, sets the kind and intensity of subsequent emotion. The persistent form and intensity of emotions is called mood. The ability of the brain to generate novel scenarios and settle on the most effective among them is called creativity. 1998, p. 115

The cells that are the basis of the neural networks that make all of this happen, to reiterate Wilson’s causal linkages, are the genes that prescribe the epigenetic rules that, in turn, prescribe the physiochemical processes within the brain that lead to the experience of meaning, creativity, and so on. To put this another way, these mental processes, that is, the configurations of the brain-machine best suited to survive over generations, are governed by Nature’s design process that we know as natural selection.

Again it must be pointed out that Wilson’s attempt to avoid the criticism of genetic determinism is like a verbal shell game. His argument that genes create brains, and that brains determine the survivability of the genes and the epigenetic rules governing brains and behavior is circular, and has no basis in scientific evidence. Wilson is simply trying to explain away the contradiction inherent in his theory. And he needs the reader to assume that his authority as a much acclaimed scientist carries over into the complex domain of the world’s diverse cultures. In spite of Wilson’s gift as a writer and as respected scientists, the reader needs to keep in mind that his attempt to represent the brain and culture as co-determinants in the evolutionary process, it is always, as he also claims, the genetic make-up of humans and, more importantly, the other organisms that constitutes the environment that culls the weak from the strong. As Wilson puts it: “the brains that

choose wisely possess superior Darwinian fitness, meaning that statistically they survive longer and leave more offspring than brains that choose badly” (1998, p. 165).

The basic inconsistency in Wilson’s thinking, and in the thinking of environmentalists who take him seriously, can also be seen in the following statement. In the introduction to the anniversary edition of Sociobiology: The New Synthesis, Wilson writes that “conservation, as I have long believed, is ultimately an ethical issue.” Ignoring what he has written elsewhere about the genetic basis of moral sentiments, Wilson goes on to claim that “moral precepts in turn must be based on sound, objective knowledge of human nature” (p. viii). The immediate question might be: If moral sentiments are genetically encoded, what purpose would be served by acquiring a “sound, objective knowledge of human nature”? It appears that Wilson is retreating to the old view of rationality as a force that can shape the course of Nature. This leads to another question: How can a scientist or anyone else acquire objective knowledge of human nature if they unavoidably rely upon the cognitive schemata encoded in the language of their cultural group? The cognitive schemata that is a taken-for-granted in Wilson’s thinking, and can be traced back to Johannes Kepler’s mechanistic way of understanding the universe, can be seen in Wilson’s representation of the brain as a mechanism—and as an engineering problem. Wilson also takes-for-granted the cultural cognitive schemata that represents change as linear and progressive in nature—which leads him to see scientific knowledge as representing a progressive advance over the knowledge of so called “pre-scientific cultures.” The irony inherent in this cultural pattern of thinking is that Wilson argues, as we later shall see, that scientifically based knowledge should be the basis of a world monoculture, which will require the disappearance of diversity in cultural ways of knowing. Given that natural selection does not move in a linear, progressive direction, and that it is the dynamic source of biological diversity, Wilson’s argument that the world’s cultures should be based on assumptions that have been scientifically tested reproduces the long-held western myth that cultures can progress only when they adopt the high-status knowledge of the West. If Wilson were to be consistent in his extrapolations, he should be arguing for cultural diversity, just in case a scientifically based culture is unable to adapt to future environmental changes.

This criticism of Wilson is likely to take most readers by surprise, as he continually writes about the importance of biodiversity to our future survival. His writings on the importance of biodiversity are both eloquent and well documented. If one only reads the final chapter of Consilience where Wilson discusses the different dimensions of the ecological crisis, and even

expresses deep reservations about the genetic engineering of human traits, he comes across as one of the nation's preeminent environmentalists. His work with Nature Conservancy further strengthens this impression. But his extrapolations on the theory of evolution, particularly his reductionist explanation of culture, raises serious questions about whether he has created a powerful metanarrative (ideology) that will be used by the promoters of economic and technological globalization. I think, on balance, that his extrapolations will further strengthen the integration of scientific research into the corporate culture that is the engine driving the globalization of the western mind-set that equates consumerism with success and happiness. His writings also give legitimacy to the western idea that winners are the fittest—an idea that has its roots in an earlier phase of Darwinian thinking about the fate of cultures that were being colonized. To reiterate a point that Wilson continually makes, the reproductive success of future generations is the ultimate test of genetic fitness—which to the public and heads of corporations sounds like another way of saying that Nature dictates the “survival of the fittest.” It is interesting that Wilson avoids using this phrase, but nevertheless gives it a renewed sense of legitimacy.

The Brian Swimme/Thomas Berry Interpretation of Evolution

The third interpretation of evolution, or what Brian Swimme and Thomas Berry call the “universe story” is gaining a significant following among certain sectors of the religious community, the general public, and educational theorists such as Edmund O’Sullivan. Neither Swimme nor Berry are scientists, which may account for why they give their account of evolution a more spiritual interpretation. Swimme earned his doctorate in mathematics, having written his dissertation on “Singularities in the N Body Problem,” and is now Director of the Center for the Story of the Universe at the California Institute of Integral Studies. Thomas Berry founded the History of Religion Program at Fordham University, and served as President of the American Teilhard de Chardin Association. Together they wrote The Universe Story (1992), which is both a history of the origin of the universe and the development of life on earth, and of the developmental stages of human culture.

The Universe Story is meant to be more than the narrativization of the universe’s 15 billion year history. Rather, the main purpose of Swimme and Berry is to place the ecological crisis within the larger context of the life forming processes that have led to the biologically diverse world as we now know it. Their concern is that the modern industrial approach to production and consumption now threaten to destroy the natural systems that human life depends upon. Whereas the other two

interpretations of evolution suggest that human decisions are irrelevant, Swimme and Berry see humans as at a critical juncture. In effect, they argue that the future direction that evolution will take depends upon whether humans choose entering a new era they call the Ecozoic phase of evolution or continue to perpetuate the life-destroying Technozoic era. The Ecozoic era, they point out, will require a fundamental transformation of consciousness, one that recognizes that the entire planet is interdependent and governed by the same life producing forces. This transformation of consciousness will also require, as they put it, that “the human community becomes sacred through its participation in the larger planetary community” (1992, p. 257).

Their view that human choice will determine whether evolution will follow the path dictated by either the Technozoic and Ecozoic era, as well as their appeal for a change in human consciousness, leads inevitably to a discussion of the role that education should play. And in suggesting that education has a role to play in contributing to a more ecologically sustainable future, they are again departing from the geneocentric interpretation of evolution articulated by Wilson and the computer-centric interpretation of Moravec, Dyson, and Kurzweil. The argument of Swimme and Berry that human agency can direct the future course of evolution represents a radical departure from the more widely accepted view that the environment selects the life forms that are to survive and reproduce themselves through future generations. Thus they need to explain the process of evolution in a way that allows for the efficacy of human choice. And they do this by introducing the idea that evolution is based on what they call the “Cosmological Principle.” This principle, they claim, is characterized by “differentiation, autopoiesis, and communion throughout time and space and at every level of reality” (p. 71).

Differentiation is simply another term for the process of mutation and niche selection, and is a core feature of the mainstream interpretation of evolution articulated by Wilson and Richard Dawkins (1976). Autopoiesis, which refers to the self-organizing characteristics of all organisms, is also essential to the mainstream interpretation of evolution. But communion is not. Swimme and Berry summarize the nature of communion as being related—“for relationship is the essence of existence” (p. 77). This understanding of communion (relationships) as a defining characteristic of life could have been achieved by using the word ecology. However, the use of communion has a more theological connotation that is essential to their way of framing citizenship within the Ecozoic era. They also want to go beyond just introducing a religious theme: they want the principle of communion to frame how evil is understood. As they put it:

The loss of relationship, with its consequent alienation, is a kind of supreme evil in the universe. In the religious world this loss was traditionally understood as an ultimate mystery. To be locked up in a private world, to be cut off from intimacy with other beings, to be incapable of entering into the joy of mutual presence—such conditions were taken as the essence of damnation. p. 78

Swimme and Berry suggest that there is another characteristic of evolution that has been overlooked in the other interpretations. That is, they explain the process whereby natural selection fits an organism to a particular niche in a way that invests the organism with intentional choice. Their example is the evolution of the horse and the bison, which they claim involved a choice on the part of the horse to evolve in a way that made survival dependent upon speed of movement. The bison evolved its more massive physical features by making the choice to stand and confront its enemies. Unlike the two previous interpretations of evolution being considered here, Swimme and Berry need to introduce intentional choice into the process of natural selection in order to make the case that humans have a choice between a Technozoic-life-destroying future and an Ecozoic-life-sustaining future.

It is especially important to note that the introduction of communion and choice as essential features of evolution are not found in the mainstream scientific version of evolution. We have only to recall Wilson's explanation of how genes carry the instructions that give organisms their distinctive form and capabilities—including mental processes that produce culture. Wilson attempted to avoid presenting a form of genetic determinism by suggesting that genes co-evolved with culture, but he constantly follows his gene-culture co-evolution with statements such as the following.

Thousands of genes prescribe the brain, sensory system and all the other physiological processes that interact with the physical and social environment to produce the holistic properties of mind and culture. Through natural selection, the environment ultimately selects which genes will do the prescribing. 1998, p. 137 italics added

It is also important to note that Swimme and Berry also acknowledge natural selection as “life’s power to sculpt diversity in a creative fashion” (p. 127). In another statement that is consistent with the mainstream theory of evolution they write that “natural selection is a survival of the ‘fittest’ in the sense that the genes enabling one particular phenotype to succeed relative to all others are selected and passed on” (p. 128).

The problem that Swimme and Berry do not address is how to reconcile human choice with the amoral, non-rational dynamics of natural selection—which Swimme and Berry acknowledge as dictating the survival of the fittest. Another problem they overlook is that human choice and communion occur within a human time frame that is profoundly different from the time frame within which natural selection works. The efforts of Swimme and Berry to humanize the inexorable dynamics of natural selection thus seem little more than wishful thinking that may or may not have any influence on meeting the test of natural selection. Perhaps the predictions of Moravec, Stock and the other techno-utopians that computers will replace humans will prove to be more accurate. Nature (the interplay between genes and the environment) may not reward the efforts of environmentalists, but instead reward the corporations working to impose a monoculture of taste and values on the world. It may even be possible that Nature's fittest will prove, over time, to be the dictators who do not flinch at imposing repressive policies on the weakest members of their societies. In short, even if one accepts that evolution can governs cultural developments, the life-span of individuals who make judgments about what represents the outcome of natural selection in the area of culture is too limited to accurately predict what Nature has selected for survival.

Having accepted evolution as the total explanatory framework, Swimme and Berry have no real basis for claiming that human choice can influence the outcome of natural selection. Swimme, for example, sees not contradiction in basing the following statement on an evolutionary account of the survival of the fittest:

The center of the cosmos is each event in the cosmos. Each person lives in the center of the cosmos. Science is one of the careful and detailed methods by which the human mind came to grasp the fact of the universe's beginning, but the actual origin and birthplace is not a scientific idea; the actual origin of the universe is where you live your life. 1996. p. 112 italics in the original

Swimme's life-affirming words may appeal to members of the affluent middle class who are searching for a sense of meaning in an increasingly materialistic world, but they seem to be more New Age than consistent with the evolutionary paradigm that is the basis of their story of the universe. Indeed, his statement suggests that every kind of behavior is what the cosmos is doing, and that the cosmos will sort out the fittest from the rest.

Ideological and Educational Implications

It needs to be recognized at the outset that adopting any of the three theories of evolution contributes to extending the explanatory power of science into the symbolic domain of culture. For all its contributions to improving the quality of life, and to expanding our knowledge of natural phenomena, the scientific mode of inquiry is too limited to explain the evolutionary basis of mythopoetic narratives, meaning, values, and daily practices of different cultures. The claim that cultural patterns are “memes” that are determined in the micro-ecologies within which genes pass on their life building instructions simply reflects the hubris of scientists who do not recognize the limitations of science.

There are, however, other reasons for caution in adopting any of the three explanations of cultural evolution. A careful examination of the computer-centric and genocentric interpretations of evolution, as well as the universe story of Swimme and Berry, brings out an important limitation in their thinking. Namely, all three envision evolution leading to a world monoculture. The Wilson and the Swimme/Berry interpretations are sensitive to the ecological crisis, yet both of their accounts are based on assumption that, regardless of cultural developments, it is Nature that selects the fittest to survive. Wilson wants to make scientists the ultimate judge of which cultural beliefs and patterns will meet the test of Darwinian fitness. Swimme and Berry envision the world’s cultures organizing themselves to fit the “single story” of the evolution of the universe. “The primary purpose of education,” according to them, “should be to enable individual humans to fulfill their proper role in this larger pattern of meaning”. They go on to claim that “we can understand this role in the Great Story only if we know this story in its full dimensions” (1992, 256). While Swimme claims that “each person lives in the center of the cosmos” may suggest that cultural diversity is part of the unfolding of the cosmos, the underlying epistemological framework is the theory of evolution of western science. In effect, Swimme and Berry are claiming that there is only one story, and, by extension, that the stories of other cultures are to be abandoned in favor of the one that claims that natural selection “shapes life at a fundamental level” (127). Their references to Muslim, Hindu, and Confucian cultures might suggest to the casual reader that they are committed to a culturally diverse world. Nevertheless, it needs to be kept in mind that the main theme they keep coming back to throughout the book is that western science has given us the only true story—that life and culture are formed through natural selection.

Aside from the failure of all three theories to account for how cultures reproduce themselves in ways that are consistent with their mythopoetic narratives, and for how many oral cultures have attained a far more ecologically-centered existence than the supposedly more advanced western cultures, there is the even more serious problem of expanding the theory of evolution into a total explanatory framework. The micro level of natural selection, where better genes produce better organisms that are able to reproduce themselves over many generations, can too easily lead to the extrapolation that at the macro level the better memes (cultural beliefs and patterns) have met the test of natural selection and become encoded in the institutions that represent the cutting edge of the evolutionary process. That is, the scientific account of why some organisms survive while others do not is easily translated into an ideology, as we have witnessed since the latter part of the nineteenth century, that justifies the destruction of local self-reliant cultural traditions in the name of progress.

While ideologies do their work in the immediate here and now, natural selection works over a longer time frame than what humans can individually experience. Humans simply cannot determine what will survive over the long term, but they can find in the theory of natural selection the metaphors that legitimize their activities and institutions as being consistent with Nature's design process. These metaphors include "competitive," "better adapted," "fittest," and, now, "sustainable." These metaphors can easily be incorporated into the language of Classical Liberalism, which is the guiding ideology underlying the west's economic systems.

In today's world, arguments for globalizing a consumer/technology dependent lifestyle, the right of the WTO to nullify the process of democratic decision making at all levels of government, and the right of corporations to destroy the economic basis of local communities and the resource base of Third World cultures, can all be justified on the grounds that the basic life forming processes are being expressed when the strong (the fittest) displace the weakest (the unfit). Swimme's mantra ("the center of the cosmos is each event in the cosmos") can easily be adopted by heads of corporations and the decision makers in the WTO and World Bank.

It is unfortunate that Swimme and Berry chose evolution as an explanatory framework for suggesting that the direction of cultural development in the West needs to be changed. By suggesting that choice, communion, and an ecologically sustainable form of consciousness are subject to the process of natural selection, they give support to an updated and thus supposedly more scientifically rigorous version of Social Darwinism. If the environment determines the fittest, then

choice becomes what markets dictate, communion becomes the sense of participating in an interconnected global economy, and sustainability becomes a matter of beating back competitors by exploiting cheaper labor and the natural resources of Third World cultures. They could have made a stronger case for alerting the public to the dangers of following the present course of experimental and unrestrained technological development, and for their understanding of the changes that will lead to lifestyles governed by a deep commitment to moral reciprocity between humans, between humans and Nature, and between cultures. The ideas of Gregory Bateson, the literature on different cultural approaches to revitalizing their traditions of self-sufficiency, and the critiques of how international economic agreements are undermining local democratic traditions and patterns of self-reliance would have provided the insights, evidence, and sense of hope that Swimme and Berry want to engender through their story of the universe. Instead of the omnipresent background message that Nature decides, the reader would have encountered examples of on-the-ground efforts of people in different cultural contexts to live less ecologically destructive lives.

Implications for Educational Reforms

Most educational advocates of constructivist learning are preparing students for participation in the global monoculture that requires constant change. These theorists contribute to the modern mind-set that experiences change as the norm, and as the expression of progress. Indeed, their respective process approaches to education are claimed to be the well-spring of new ideas and values that will accelerate the rate of change. Their continual references to the reconstruction of experience and to transformative learning indicates that these educational theorists, in effect, share the same view of constant change that underlies all three interpretations of evolution. They also share in common with the three interpretations of evolution the assumption that their prescriptions for reform are to be universally applied. While they may give lip service to cultural diversity, they assume that their assumptions about the progressive nature of change, individualism, ongoing emancipation, and an anthropocentric world view are shared by all cultures. And like the interpreters of evolution they assume that they speak for all the world's cultures.

What is needed today are not educational reforms based on the same deep cultural assumptions that underlie the current phase of economic globalization and cultural colonization—twin processes that are undermining linguistic/cultural diversity and are accelerating the destruction of natural systems. Educational reform should, instead, address issues connected with eco-justice that have implications for all cultures. The irony is that eco-justice is not based on

the logic of Darwinian fitness where the contingencies of the environment select which organism and corporation is to reproduce itself over generations to come. Rather, it is oriented toward addressing the plight of what from a Darwinian point of view would be viewed as the weakest groups in society and the most vulnerable cultures.

The four principles of eco-justice that should be the focus of educational reform include: (1) addressing the nature, causes, and strategies for eliminating environmental racism; (2) affecting basic reforms that will end the exploitation of the South by the North; (3) revitalizing the non-commodified traditions of self-reliance within different communities and cultural groups that will reduce dependence on industrially produced goods and services; and (4) ensuring that today's cultural practices do not degrade the environment in ways that diminish the prospects of future generations. Each of these areas of educational reform can be justified as contributing to an ecologically sustainable future, but they do not fit with Wilson's explanation of how genes create a range of possibilities that the environment, in turn, will select for survival—which, in the final analysis, Swimme and Berry also subscribe to.

As mentioned earlier, the three interpretations of evolution emphasize that change is a constant, which is easily interpreted to mean that cultures undergoing rapid change are in a constant state of adapting to the contingencies of the environment. On the other hand, cultures oriented to conserving beliefs, practices and place-based technologies are viewed as backward, undeveloped—and as colonizing opportunities. Conserving cultures, even those that are ecologically-centered, are thus seen as on the verge of extinction. Yet, the only effective resistance to the current global expansion of the industrial mode of production and consumption is in local traditions of face-to-face, intergenerationally connected activities and forms of knowledge that have not been monetized. These community revitalizing traditions vary from culture to culture, and are under pressure from the products of transnational corporations geared to overwhelm their competition in real short-term tests of survival of technologically and economically fittest. As the cultural environments become increasingly shaped by these transnational corporations, asking the question “What do we need to conserve in an era of ecological uncertainty?” appears to be an irrelevant if not a reactionary question. But this is the very question that is at the center of an eco-justice and community building approach to educational reform.

The condition of hyper-consumerism that now exists in North America, and is now upheld as the standard that other developed and non-developed cultures should aspire to, is a major contributor

to environmental racism, the exploitation of the South by the North, and to putting the prospects of future generations at risk. Hyper-consumerism and the constant search for new technologies and exploitable niche markets are also responsible for the amount of toxic waste that gets dumped in the neighborhoods of the most vulnerable groups in society. The rapid depletion of natural resources, which requires exploiting the resource base of Third World cultures can also be traced back to the hyper-consumerism that is now the norm in North America. The problem is that the need to continually expand markets in order to expand production and profits requires that cultural traditions of self-sufficiency be undermined, as we are witnessing in the industrial approach to agriculture being promoted in Third World cultures that requires the purchase of fertilizers, pesticides, and, in many instances, seeds for next year's planting. To cite another example, the industrialization of food preparation and consumption (e.g., MacDonalds, KFC, etc.) disrupts the passing on of intergenerational knowledge about the preparation of food and the face-to-face experience of families sharing their stories with each other over a meal. If we examine all the cultural disruptive characteristics of hyper-consumerism we find the what the industrialization of life processes requires is the autonomous individual that western approaches to education have also made their goal.

An eco-justice approach to education can address the ecologically disruptive level of consumerism by orienting the curriculum more towards revitalizing the intergenerational forms of knowledge, skills, and activities that represent alternatives to a consumer dependent lifestyle. Thus, the importance of asking what it is in the various communities and cultural groups that needs to be conserved—in the areas of food preparation, ceremonies, healing, the arts, sports, craft knowledge, patterns of mutual aid, and so forth. Students need to do a survey of just how many aspects of daily life involve some form of monetized relationships and activity. And they need to engage in a survey of the aspects of the different communities and cultural groups that involve non-monetized relationships and activities. They may find mentors in the various arts, gardening, sports, use of place-based technologies, story-telling, and so forth that will lead to the development of the students' interests and talents—and that reduce the need to work long hours in minimum wage jobs that leave little or no time for participating in community networks. Unfortunately, the eco-justice reforms that follow from reducing the today's out-of-control consumerism are going to be difficult to achieve, partly because the intergenerational knowledge that need to be revitalized has been accorded low status by public schools and universities.

Yet revitalizing the local knowledge of self-sufficiency, both within western and non-western cultures is absolutely essential if we are to slow the current rate at which the world's 6000 or so languages are disappearing—along with the knowledge they encode of local ecosystems. The emphasis on change, and being the dominant culture in the Darwinian game of survival of the fittest, puts these ecologically-centered cultures at great risk. With their disappearance, the industrial model of production and consumption gains in strength and momentum. The danger in Wilson's genocentric argument can be seen if the logic of his position is spelled out: the genes that give rise to brains that are more competitive in creating new technologies and expand markets by undermining intergenerational traditions of self-reliance are the major contributors to developing a world monoculture and to turning the environment into toxic waste.

The suggestion that we need a major change in consciousness, particularly in western cultures, is likely to run into stiff opposition—even from environmentalists and community activists. The problem is that for generations the promoters of the industrial model of production and consumption have been identified with conservatism, even though their ideas and values have their roots in the Classical Liberal tradition of John Locke, John Stuart Mill, and a misreading of Adam Smith. The ideas of these founding fathers of liberalism was given further legitimization by Social Darwin theorists such as Herbert Spencer. The need today is not for the global expansion of this tradition of thinking, but for an understanding of how to achieve a better balance between community-centered traditions of self-sufficiency and reliance on technological advances that make a genuine contribution to improving the quality of life within different cultures. Educational reforms need to be based on an understanding of how the curriculum can best provide students with the knowledge and values necessary for assessing the impact of new technologies on the environment and on the traditions of self-reliance within different cultures. Contrary to the conventional wisdom held by most educational reformers, asking the question “What do we need to conserve as the world moves closer to overshooting the capacity of natural systems?” is essential to democratic decision making. Reliance on a theory of natural selection that explains how the diversity of life has evolved from primitive to complex, and how certain cultures will survive while others will not, makes the question of what needs to be conserved appear to be irrelevant if not a reactionary position to hold. The assumption that the environment selects the better adapted culture supports the western cultural myth that equates change with progress, which is not the assumption that leads to resisting the economic and political forces behind the process of globalizing a consumer dependent lifestyle that

is rapidly degrading the environment. Resistance to these forces is at the local level, in face-to-face relationships that involve non-monetized activities and patterns of mutual support. And revitalizing these intergenerationally connected patterns of community that are the basis of moral reciprocity and ecological sustainability often represent acts of resistance to the domination of what has been industrially produced—which to neo-liberal thinkers appears as the most culturally evolved. Thus, genuine curriculum reforms must not be based on any of the three theories of evolution which become ideologies when extended into the domain of culture. Nor can they be based on the liberal assumptions that, in the name of progress and individual autonomy, undermined cultural sources of resistance to the industrialization of everyday life.

References

- Bowers, C. A. 2001. Educating for Eco-Justice and Community. Athens: University of Georgia Press.
- _____. Winter, 2001. “Toward and Eco-Justice Pedagogy.” Educational Studies. Vol. 32. No. 4. Pp. 401-416
- Dawkins, Richard. 1976. The Selfish Gene. New York: Oxford University Press.
- Dyson, George. 1997. Darwin Among the Machines: The Evolution of Global Intelligence: Reading, Mass.: Addison-Wesley.
- Kelly, Kevin. 1994. Out of Control: The Rise of Neo-Biological Civilization. Reading, Mass.: Addison-Wesley.
- Kurzweil, Ray. 1999. The Age of Spiritual Machines: When Computers Exceed Human Intelligence. New York: Viking Press.
- Lewontin, R.C. 1992. Biology as Ideology: The Doctrine of DNA. New York: Harper.
- Moravec, Hans. 1988. Mind Children: The Future of Robot and Human Intelligence. Cambridge, Mass.: Harvard University Press.
- _____. December, 1999. “Rise of the Robots.” Scientific American. Vol. 281. No. 6. Pp. 124-135.
- O’Sullivan, Edmund. 1999. Transformative Learning: Educational Vision for the 21st Century. Toronto: University of Toronto Press/Zed Books.
- Stock, Gregory. 1993. Metaman: The Merging of Humans and Machines into a Global Superorganism. Toronto: Doubleday Canada.

- Wilson, E. O. 1998. Consilience: The Unity of Knowledge. New York: Alfred A. Knopf.
- _____. 2000. Sociobiology: The New Synthesis. Cambridge, Mass.: Harvard University Press.
- Swimme, Brian. 1996. The Hidden Heart of the Cosmos: Humanity and the New Story. Maryknoll, NY.: Orbis Books.
- Swimme, Brian, and Berry, Thomas. 1992. The Universe Story. San Francisco: Harper/SanFrancisco.

Chapter 4 Why the Lakoff and Johnson Theory of Metaphor is Inadequate for Addressing Cultural Issues Related to the Ecological Crises

The writings of George Lakoff and Mark Johnson were intended to radically change one of the dominant traditions of Western philosophy, which is the tradition of abstract theory that stretches from the ancient Greeks down through the writings of the today's analytic philosophers. In place of de-contextualized and thus culturally uniformed theories about the nature of reality, mind, language, and individualism, Lakoff and Johnson proposed that the task of the philosopher is to clarify how the metaphorical basis of language, and thus systems of knowing, originates in the embodied experience of individuals. In effect, their agenda is summed up in the title of their major book, Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought (1999). While they make a cogent case against the many ways in which Western philosophers have framed the process of reasoning, thus achieving little more for humanity than giving legitimacy to their own theoretical edifices, the Lakoff and Johnson argument that metaphorical reasoning originates in individual's "sensorimotor experiences so regularly they become neurally linked" (1999, p. 555) represents an equally extreme and problematic position. In place of the rational process that is represented as free of both cultural and embodied experiences, they argue that the starting point of philosophy, science, and knowledge generally begins with the individual's perceptual and motor systems—that is, embodied experience.

The word culture occasionally appears in their writings, but they do not examine its complex nature and diversity, and thus the implications it has for bringing into the question the Western notion of the autonomous (that is, culturally uninfluenced) individual they take for granted—and upon which their entire theory rests. A word they do not mention is "ecology". This omission, leads in turn, to their failure to acknowledge that today the ecological crises should frame any discussion

of metaphorical thinking. What cannot be explained by their theory is why they share this oversight with key Western philosophers who also ignored how the environments of their era were being degraded. Supposedly, the individual whose sensorimotor experiences and habituated neural connections become the basis for framing the meaning of words (metaphors), and thus for how relationships are understood, is unaffected by changes in the natural environment. This is not simply an oversight that has few if any serious implications. It becomes of paramount importance when it is recognized that the extrapolation of the word “ecology”, which is the modernized version of the early Greek word “oikos”, always situates the individual as a participant within a cultural and environmental context. It is only when the “individual” is treated as an abstraction that these ecological relationships are ignored. In effect, the individual’s embodied participation in this larger ecology of relationships includes other people, the semiotic systems of the culturally constructed world, and the complex message exchanges (what Gregory Bateson refers to as the “difference which makes a difference”) that sustain the complex and interdependent living systems we refer to as the natural environment.

In order to understand the more long-term problem of locating, as Lakoff and Johnson put it, “our conceptual system” in the individual’s “perceptual and motor systems” (1999, p. 555), it is necessary to summarize the changes that the Earth’s natural systems are undergoing. It needs to be recognized at the outset that global warming is just one aspect of the ecological crises that is not likely to be addressed by concepts derived from the embodied experience of the individual. Indeed, their extreme reductionist understanding of the origins of knowledge leads to a radical difference between what individuals would be able to learn from their embodied encounters with their local environments and what scientists are now reporting. For example, scientists studying the impact of global warming have documented that the Greenland ice cap is melting at an accelerating rate, with one glacier moving to the sea at a rate of 2 meters an hour on a 3 mile front and at a depth of 1500 meters. The melting of the Arctic sea ice and the glaciers in the Antarctic is also accelerating at a rate totally beyond what scientists thought possible. And the glaciers in the Himalayas and the Tibet-Qinghai Plateau that feed the major rivers in India and China are disappearing at a rate of 7 percent a year; with glacier in other parts of the world disappearing at a similar rate. (Brown, 2008). The basic assumptions (listed below) of Lakoff and Johnson limit the individual’s conceptual understanding of the environment to what they have an embodied relationship with. The result would be that grasping

the world-wide consequences of global warming would be beyond the individual's conceptualization.

There are other changes in the life sustaining capacity of the Earth's ecosystems that would also go unrecognized. In addition to the global threat to the sources of fresh water that hundreds of millions of people face, there are similar changes in the chemistry of the world's oceans. As the oceans absorb higher level of carbon dioxide they are becoming more acidic, and this change in their chemistry as well as temperature is threatening the organism that are the basis of the ocean food chain. Other changes in the world's oceans include the near extinction of many fisheries that are vital sources of protein that hundreds of millions of people depend upon. Kolbert, 2006). In addition to droughts that are affecting many regions of the world, and the dying off of vast forests due to changes in temperatures that make them vulnerable to insects, the estimated loss of the earth's topsoil has been put at over thirty percent.

The huge expansion of the world's population over the last century along with the spread of economic globalization have combined into an increasingly destructive force that is undermining the capacity of natural systems to regenerate themselves. Until social philosophers and market liberals turned Adam Smith's theory of free markets and the "invisible hand" into an abstract and thus universal law of economics, markets were local and integrated into the cultural fabric (including moral norms governing reciprocity) of the world's diverse of communities. But this abstract theory has now taken on the same status as the natural law of gravity, and has become a major force in spreading the industrial/consumer dependent lifestyle that is increasing the rate of environmental degradation. China, for example, is becoming transformed into a consumer-oriented society, and now is first in the production of coal, steel, and cement. It also has 16 of the world's 20 most polluted cities. Their current economic downturn is being met by reducing the production of consumer goods for export, but is being replaced by greater investment in infrastructure projects—including the building of more coal fired electrical generating and carbon emitting plants. These plants are being build at a rate of one very week or so. China has already consumed the forests of Thailand, Cambodia, and the Philippines—and at the current rate will within two decades swallow the forests of five neighboring countries, including the forests of the Russian Far East. India, Brazil, as well as many other countries are also on the same consumer-oriented cultural pathway of development. Indeed, consumerism and the adoption of Western patterns of thinking and values are

now associated with becoming modern and developed, and thus free of being stigmatized as culturally backward.

As philosophers have a long history of ignoring how cultural belief systems impact the life sustaining capacity of local ecosystems, the question that is likely to come up is: what relevance does this overview of the ecological crises have for assessing what is problematic about the Lakoff/Johnson theory of the embodied origins of our guiding metaphors? What is being overlooked by the scientists and engineers who are trying to develop more sustainable and less carbon producing technologies, and by the general public that has accepted that new technologies are the solutions to the ecological crises, is that we need to change the metaphorical language that gave conceptual direction and moral legitimacy to the industrial/consumer oriented culture that has become a major contributor to overshooting the sustaining capacity of natural systems. Lakoff and Johnson got it right when they argued in Metaphors We Live By (1980) that all thought is based on metaphors, When they made the turn toward locating the source of metaphors in the embodied experience of the individual, which was motivated by their concern with the hegemony of abstract theory and language usage by mainstream Western philosophers, they lost sight of the more obvious and now ecologically important characteristic of language. That is, they ignored that words as metaphors have a history and that they carry forward the misconceptions and silences of earlier thinkers who succeeded in establishing the analogs that framed the meaning of words over time. In effect, they failed to recognize that the industrial/consumer oriented culture that is now being globalized, and that is overshooting the sustaining capacity of the natural systems, is based on the metaphorical thinking of earlier thinkers who were unaware of environmental limits.

Before explaining how much of today's ecologically problematic thinking is based on what Gregory Bateson refers to as "double bind thinking" it is necessary to reproduce here the 6 basic assumptions that the Lakoff and Johnson theory is based upon. In order to avoid any misrepresentations of their assumptions, they shall be presented here as they appear in Philosophy in the Flesh.

Embodied Reason

- Embodied Concepts: Our conceptual system is grounded in, neurally makes use of, and is critically shaped by our perceptual and motor systems.

- **Conceptualization Only Through the Body:** We can only form concepts through the body. Therefore, every understanding that we can have of the world, ourselves, and others can only be formed in terms of concepts shaped by our bodies.
- **Basic-Level Concepts:** These concepts use our perceptual, imaging, and motor systems to characterize our optimal functioning in everyday life. This is the level at which we are maximally in touch with the reality of our environment.
- **Embodied Reason:** Major forms of rational inference are instances of sensorimotor inferences.
- **Embodied Truth and Knowledge:** Because our ideas are framed in terms of our unconscious embodied conceptual systems, truth and knowledge depend upon embodied understanding.
- **Embodied Mind:** Because concepts and reason both derive from, and make use of, the sensorimotor system, the mind is not separate from or independent of the body. Therefore, classical faculty psychology is incorrect. (1999, p. 555)

There can be no doubt that many of our metaphors have their origins in bodily experiences, as Lakoff and Johnson point out. Concepts such as up and down, back and forward, full and empty, and even the old British systems of measurement of inch, foot, yard, and mile can be traced back to bodily experiences. Also, their discussion of how different experiences provide generative frameworks (schemas) for understanding an activity, behavior, and policy, where the already familiar becomes the model for understanding something new, has to be taken seriously. It needs to be pointed, however, that their insight is only partly correct. Some of our concepts do have an embodied origin yet even these conceptual schemas will differ from culture to culture, depending upon the culture's mythopoetic narratives and/or cosmology. For example, while Lakoff and Johnson would attribute the concept that underlies the use of the personal pronoun "I" to the embodied experience of an individual, they overlook that this is a culturally constructed identity—one that can be traced back to the writings of post-medieval philosophers and political theorists. Instead of the "I want" and "I think" habituated pattern of thinking so prevalent in the West, there is a profoundly different way of understanding self which varies from culture to culture. Among the traditional Maori, for example, when a guest enters into the marea (the communal gathering place) she gives her name and then her lineage—followed by an explanation of her ties to the family or group she is visiting. If we consider the Quechua of the Peruvian Andes we find a different way in which this relational self is understood—which can be traced to their cosmovision

that represents all aspects of life as interdependent and in constant communication—with plants, animals, and weather patterns communicating what the people’s agricultural decisions should be. The key point is that Lakoff and Johnson repeat the silences about the nature and influence of culture that characterizes Western philosophy. One of the consequences of perpetuating this hubris is that readers who take them seriously are not likely to recognize that we have much to learn from cultures that have developed in ways that enabled them to live within the limits and possibilities of their bioregions.

While Lakoff and Johnson also remain silent about the ecological crises, the consensus of the world’s scientists is that we are within a few generations of a tipping point when changes in human behaviors will not longer be able to reduce the rate of global warming. It is important, therefore, to consider whether the Lakoff and Johnson theory of the embodied basis of metaphorical basis of thinking is useful for understanding why the dominant Western culture continues to promote an industrial/consumer dependent lifestyle when the evidence continues to mount that it is ecologically unsustainable. The other question that needs to be raised is “can their theory of the embodied origins of our concepts lead to introducing fundamental changes in ways of thinking and behaviors that have a smaller ecological footprint—including changes in our policies of economic and cultural colonization that prevent other cultures from revitalizing their traditions of self-sufficiency and mutual support that are less dependent upon a money economy and that have a smaller ecological footprint?”

What the Lakoff and Johnson theory of metaphor fails to take into account is that words have a culturally specific history. As metaphors whose meanings were framed by analogs established in the distant past by people who were unaware of environmental limits and other cultural knowledge and moral systems, these words continue to influence current thinking in ways that reproduce the misconceptions and silences taken for granted in these earlier times. Albert Einstein was aware of this problem when he warned about the danger of relying upon the same mindset that created the problem to fix it. “Double bind thinking” is the phrase Gregory Bateson used to describe this same problem, which he understood as the failure to recognize that the meaning of key words used today as the basis of understanding current problems and relationships were framed by the analogs established by earlier thinkers who were addressing issues in a different historical and cultural era. The analogs that framed the meaning of words such as “intelligence”, “technology”, “tradition”, “individualism”, “property”, “freedom”, “woman”, “environment”, and so forth, can be traced back

to earlier theories, powerful evocative experiences, and even to mythopoetic narratives such as found in the Book of Genesis. For example, the limiting analogs that framed how the word “woman” was understood in the West over thousands of years did not arise out of the embodied/sensorimotor/neurally connected experience of today’s individual. Nor do today’s widely accepted understanding, especially within the academic community, of such words and phrases as “tradition”, “artificial intelligence”, “property” , and “enlightenment” have their origins in the subjective embodied experience of the individual. The analogs that continue to frame what is taken today as the meaning of these words can be traced back to earlier events and thinkers. To summarize a key shortcoming of the Lakoff and Johnson theory about the origins of metaphorical thinking: it cannot account for the linguistic colonization of the present by the past.

Nor can their theory clarify the dynamics of the linguistic colonization of other cultures. Indeed, if one gives careful consideration to their 6 key assumptions, it becomes impossible to explain the differences in cultural ways of knowing—including why some cultural have developed in ways that are more ecologically sustainable. For example, the collection of essays by Third World writers in Wolfgang Sachs’ The Development Dictionary: A Guide to Knowledge as Power (1992) provide examples of how such words as “development”, “market”, “poverty”-- whose meanings were framed by the analogs taken for granted by Western thinkers—are understood as the language of cultural colonization. Gerald Berthoud summarizes in the following way the colonizing agenda in the Western use of “development”:

What must be universalized through development is a cultural complex centered around the notion that human life, if it is to be fully lived, cannot be constrained by limits of any kind. To produce such a result in traditional societies, for whom the supposedly primordial principle of boundless expansion in the technological and economic domains is generally alien, presuppose overcoming the symbolic and moral ‘obstacles’, that is, ridding these societies of various inhibiting ideas and practices such as myths, ceremonies, rituals, networks of solidarity and the like. (Sacks, p. 72)

Berthoud identifies the analogs that frame the Western idea of development by observing it subjects Third World cultures to “the compelling idea that everything that can be made must be made, and then sold. Our universe (according the Western way of thinking) appears unshakeably structured by the omnipotence of technoscientific truths and the laws of the market” (p. 71). The other essays in The Development Dictionary bring out how key words in the modern vocabulary are

not culturally neutral metaphors, but are part of the process of linguistic colonization that serves to legitimate economic colonization. And the combination of linguistic and economic colonization impacts the behavior of individuals—even at the level of the individual’s “perceptual, imaging, and motor systems”—which is the reverse of the Lakoff and Johnson formula that represents bodily experiences as shaping the individual’s conceptual system.

There is another characteristic of metaphorical thinking ignored by Lakoff and Johnson that is critical to whether we are able to adopt a more ecologically informed way of thinking and behaving. The image metaphors (or what can be referred to as iconic metaphors) they focus on as originating in embodied experiences, as well as image metaphors that come down to us from earlier times (which they do not recognize) are often framed by the prevailing root metaphors of the culture. According to Richard H. Brown, root metaphors are meta-cognitive schemata that are taken for granted and thus frame thinking in a wide area of cultural activity over years—even centuries (1977, p. 125). They originate in the mythopoetic narratives of the culture, powerful evocative experiences that are sustained over generations, and from the processes of analogic-based theories by writers who were able to overturn older root metaphors.

In the West, patriarchy and anthropocentrism are examples of taken for granted explanatory/moral frameworks (root metaphors) that have not only framed how people think and behave, but also what they ignore. Individualism and progress are also root metaphors that can be traced back to various political theorists, evocative experiences ranging from the introduction of the printing press to the early successes of modern science. Mechanism is yet another root metaphor whose origins was not in the individual’s bodily experiences, but to a combination of historical events—ranging from organizing the rhythms of daily life in accordance with the cycles of a mechanical clock, the successful applications of a mechanistic paradigm by scientists, to advances in medicine and other technologies such as computers. The explanatory power of the mechanism root metaphor over hundreds of years can be seen in Johannes Kepler’s (1571-1630) statement that “my aim is to show that the celestial machine is to be likened not to a divine organism but to a clockwork”; in Marvin Minsky’s (early leader in the field of artificial intelligence) statement that “our conscious thoughts use signal-signs to steer the engines in our minds, controlling countless processes of which we’re never much aware of”, in Richard Dawkin’s reference to the body as a “survival machine”; in E. O. Wilson’s reference to his brain as a machine, in the current way of

identifying a plant cell as possessing a “powerhouse”, “recycling center”, and a “production center”; and in today’s widespread references to the brain as like a computer.

As meta-cognitive explanatory frameworks guide thought and behavior at a taken for granted level of consciousness, they exercise a profound influence on many aspects of culture—and thus on the embodied experiences of the individual. For example, the root metaphor of patriarchy established the analogs for understanding the identify and behavior of women in ways that were highly restrictive, and it exercised this control over centuries until only recently when the word “woman”, in some sectors of society, became associate with a wide range of new analogs such an engineer, artist, doctor, politician, and so forth. We could take other mutually supportive root metaphors in the West and trace how they create areas of silence, limit the vocabulary to what is conceptually and morally coherent with the root metaphor, and thus control the discourse that frames how political problems are understood and the approach to resolving them. What is especially important about the root metaphors listed above is that they gave conceptual direction and moral legitimacy to the industrial/individually-centered/ consumer-dependent lifestyle that has been a major contributor to global warming and to the economic exploitation of the environment.

As fisheries disappear, droughts become more widespread, storms more violent, and sources of potable water increasingly scarce and contaminated, the embodied experiences that Lakoff and Johnson want to claim as the source of concepts and inferences are unlikely to lead to an awareness that everyday life is being impacted by a symbolic ecology that is still being reinforced at every level of the educational process— and by the media, political pundits, and even by many environmentalists. To make the point more directly, embodied experience alone will not provide the conceptual and linguistic capital necessary for recognizing the double bind thinking that limits our ability to renew the intergenerational patterns of self-sufficiency and mutual support that represent alternatives to the industrial/consumer lifestyle that is moving us closer to the tipping point that will have huge consequences for the embodied experience of the individual—such as social chaos, starvation, and toxic induced illnesses and death. What is ironic, especially since the new root metaphor of evolution is now being extended to explain how cultural patterns (memes) are subject to the same process of natural selection, is that it is being promoted by professors who are unaware that when evolution is turned into a root metaphor that supposedly explains the symbolic world of culture it supports the market liberal ideology that, in being globalized, is exacerbating the ecological crises.

While Lakoff and Johnson claim that “our conceptual system is grounded in, neurally makes use of, and is crucially shaped by our perceptual and motor systems, it turns out that their writings and ways of understanding political issues have been heavily influenced by the root metaphors they take for granted. Johnson responded in a letter to my earlier criticism of Lakoff’s lack of historical accuracy and misuse of our political categories by claiming that there is nothing problematic with Lakoff’s reference to environmentalists as progressives. The point to keep in focus is that Johnson’s association of environmentalism with the forces of progress and Lakoff’s reliance on the same political language that underlies the cultural forces that are pushing the world beyond what the ecosystems can sustain is that their concepts are not derived from their own embodied experiences. What is ironic is that if they had done an ethnographic description (or what Clifford Geertz calls “thick description”) of their own embodied experiences they would have found that they cannot be explained by using the context free vocabulary of freedom, individual autonomy, and linear progress. Rather, a self-focused ethnography would lead to an awareness of the many ways the description of embodied experiences requires a vocabulary that foregrounds the many biological and cultural conserving processes—including the language and thus thought patterns derived from the past, the temperamentally conserving of what one is comfortable with in food, conversations, friends, of how their own DNA and RNA conserves physical traits that are intergenerationally connected, and all the taken for granted cultural patterns that sustain everyday life. In effect, a description of embodied experience that is not distorted by ideology and the formulaic use of language would be a description of conserving cultural processes and patterns—with only minor ethno-biographic differences.

The task here is to document how Lakoff, in particular, is unable to rely upon his own theory when it comes to justifying his political preferences, and to stigmatizing his political opponents. In his New York Times best selling book, Don’t Think of an Elephant: Know Your Values and Frame the Debate (2004) Lakoff makes an important contribution to understanding how the use of language frames what is given attention and what is marginalized in today’s political discourse. He is making the basic point that language is not politically neutral. Instead, the group that is able to establish its preferred vocabulary (including its silences and metaphorically based prejudices) will control the policies that are conceptually consistent with their language. In effect, a group cannot achieve its own political goals if it is forced to think in the opponent’s language.

Instead of following what is derived from his own embodied-based reasoning, Lakoff adopts

the Orwellian vocabulary that is now current at every level of the American political discourse. This discourse labels as conservatives the market liberals who derive their ideas about free markets and the invisible hand from the abstract theories of classical liberal thinkers—and the religious fundamentalists who derive their guiding principles from the equally abstract idea that the Bible, which has undergone many translations, represents the actual word of God. Lakoff's Orwellian thinking leads to identifying as progressives the social groups concerned with conserving our civil liberties (the American Civil Liberties Union), the natural systems we depend upon (the environmentalists), the people who translate their religion into social justice activism, and ethnic groups working to sustain the connections between their identities and their traditions, as all identified as progressives (p. 14). Lakoff also labels as conservatives the think tanks such as the CATO, American Enterprise, and Hoover Institutes. If he had checked out their websites, rather than relying upon popular misconceptions, he would have found that all three identify the expansion of free markets, individual freedom, and a strong defense as their primary political agenda. He would have found the following on the website of the CATO Institute: "'Conservative' smacks of an unwillingness to change, of a desire to preserve the status quo. Only in America do people seem to refer to free-market capitalism--the most progressive, dynamic, and ever-changing system the world has ever known--as conservative. Lakoff is old enough to remember Ronald Reagan introducing the General Electric weekly television program where the GE mantra of "Progress is our most important product" serves as the analog the public was to identify with GE technologies. Surely, he is aware that the techno-scientific/industrial culture has always claimed the role of being the primary progressive force in society. It has only been in recent years that, out of a widespread ignorance that can be partly attributable to the failure of universities to introduce students to the historical roots of current ideologies, that the ever changing system of free-market capitalism has been labeled as conservative (Hartz,1955).

As pointed out above, one of the characteristics of a root metaphor is that its supporting vocabulary does not include the words that enable the basic taken for granted cultural assumptions upon which it rests to be questioned. In the case of the root metaphor of progress, the two words that are either proscribed or mis-represented are "tradition" and "conserving". By relying upon the root metaphor of progress to frame his analysis of liberalism and conservatism, Lakoff falls into the conceptual trap of letting the root metaphor of progress dictate what should not be questioned: namely, whether interpreting all forms of change as the expression of progress is partly responsible

for undermining the traditions that should be conserved. Habeas corpus, the Constitution and the Bill of Rights are traditions that should be conserved--which is the primary agenda of the American Civil Liberties Union. Since the early days of the 1900s, there has been a movement to conserve what are increasingly referred to as the environmental commons, which include what remains of the natural systems that have not been taken over by private and corporate ownership and turned into market opportunities (which is considered by market liberals as progress). The cultural commons, which both Lakoff and Johnson could have made the focus of their discussion of embodied knowledge, represent the intergenerational knowledge, skills, and mutually supportive relationships that enable people to live more community-centered and thus less money dependent and less environmentally destructive lives. Yet it is these communities that are sources of resistance to the market system that the CATO Institute celebrates as the engine of progress. In short, by uncritically accepting an interpretative framework (root metaphor) that can be traced back to the 17th century shift in Western consciousness, Lakoff abandons his own prescriptions for how to account for "Embodied Reason". By lacking an historical knowledge of the origins of philosophical conservatism, which has led to our checks and balance system of government, and of the abstract theories of classical liberalism, Lakoff unknowingly aligns himself with the environmentally destructive and cultural colonizing forces of the market liberals who promote progress as though it is a law of nature.

The questions that should be asked about the Lakoff and Johnson theory of the embodied reason and the embodied origins of metaphorical thinking go much beyond the problem of their inability to abide by their own guiding assumptions. The deeper problem is their lack of awareness that we are not only at a tipping point in terms of the rate of environmental changes, but also at a tipping point in terms of whether human kind can move beyond the myths that underlie the individualistic/consumer-oriented/industrial culture. The tipping point, in effect, involves the choice of following the cultural trajectory of economic globalization that is being adopted in many regions of the world or revitalizing the local cultural and environmental commons that represent a post-industrial consciousness that is based on the ancient root metaphor that represents the biological and cultural renewing processes as an ecology. Many environmentally oriented scientists have moved beyond the mechanistic root metaphor by learning to think of the natural world as living ecologies, and many Third World cultures have not entirely lost their ecologically informed traditions.

The main challenge will be for philosophers and social theorists such as Lakoff and Johnson to explain the dangers of accepting without question the root metaphors that were constituted before

their was an awareness of ecological limits and to explain, in ways that can be widely understood, how our everyday vocabulary in the West needs to be framed by analogs that are culturally and ecologically informed. Given their unquestioning embrace of the root metaphor of progress and their commitment to assuming that embodied experience is the primary source of the metaphors that guide thought and behaviors, it is doubtful that their contribution will be little more than yet another distraction as we move closer to the ecological tipping point. Perhaps if they were to start not with the embodied experience of the supposedly autonomous individual, but with the individual's culturally mediated embodied experience, they would have the conceptual opening for considering the influence of culture, the role of language in the cultural construction of identities and ways of thinking, the impact of diverse cultures on the embodied experiences, and ecological implications of doing a "thick description" or personal ethnography of the interdependencies within the local cultural commons. This would have represented a genuine departure from the silences and hubris of most Western philosophers.

References

- Brown, Lester. 2008. Plan B 3.0: Mobilizing to Save Civilization. New York. W.W. Norton
- Brown, Richard H. 1977. A Poetic for Sociology: Toward a Logic of Discovery for the Human Sciences. Cambridge: Cambridge University Press.
- Hartz, Louis. 1955. The Liberal Tradition in America: An Interpretation of Political Thought Since the Revolution. Harcourt, Brace.
- Kolbert, Elizabeth. 2006. "The Darkening Sea". The New Yorker. November 20, pp.67-75.
- Lakoff, George, and Mark Johnson. 1999. Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought. New York; Basic Books.
- _____. 1980. Metaphors We Live By. Chicago: University of Chicago Press.
- Lakoff, George. 2004. Don't Think of an Elephant: Know Your Values and Frame the Debate. White River Junction, VT: Chelsea Green.
- Sachs, Wolfgang (editor). 1992. The Development Dictionary: A Guide to Knowledge as Power. London. Zed Books.

Chapter 5 Revitalizing the Cultural Commons or An Individualized Approach to Planetary Citizenship: The Choice Before Us

While attending the international conference on Lifelong Citizenship, Participatory Democracy, and Social Change that was sponsored by the Ontario Institute for the Study of Education, I learned that just before Paulo Freire's untimely death he had, according to Moacir Gadotti, the Director of the Paulo Freire Institute in Brazil, turned his attention to putting down his first thoughts on the need for an eco-pedagogy. Gadotti went on to claim that Freire's yet unpublished thoughts, when they are published, would be seen by environmental educators as making a major contribution to the formulation of an eco-pedagogy that has as its ultimate goal the creation of a "planetary consciousness."

As Freire's exact thoughts were not made available to the large audience, we had to rely upon Gadotti's representation of Freire's thinking of how to reconcile the ongoing project of emancipation with how to live in a more ecologically sustainable way. The assumption communicated to the audience was that Gadotti's extrapolations merely represented an extension of Freire's newly articulated guiding principles. Gadotti did not elaborate on the actual practice of an eco-pedagogy; rather his focus (and what he represented as Freire's main focus) was on the big picture. That is, the way in which an eco-pedagogy is to transform the world's diverse cultures into what he kept referring to as "citizens of a single nation." In an earlier article that includes a more extended discussion of the global agenda of an eco-pedagogy, whose main points were reiterated in Gadotti's presentation to an audience of over 400 students and professors from different countries, he wrote that the main goal of an eco-pedagogy is the development of the "planetary citizen" (2000, p. 8). His explanation of how this new form of citizen is to be achieved is based on the core assumptions and silences in Freire's formulation of a pedagogy of the oppressed. Thus, the keystone premise of Freire's theory of how humans are to achieve their highest potential, which is to engage in the continual renaming of the world that is to follow from critical reflection (1974 edition, p. 76), also becomes the keystone that holds together Gadotti's theory of the nature and goal of an eco-pedagogy. In the article "Pedagogy of the Earth and Culture of Sustainability," Gadotti reiterates Freire's criticism of the "banking" approach to education by stating that "educating then, would not be as Emile Durkheim explained as the transmission of culture 'from one generation to the next,' but the grand journey of each individual in his interior universe and in the universe that surrounds him" (2000, p. 9). It is

important to note that nowhere in Freire's writings does one find a reference to the grand journal into the individual's subjective universe as an empowering source of knowledge. But there is an even more serious problem with Gadotti's assumption that the "transmission of culture from one generation to the next" can be avoided by the subjective explorations of the individual. I have put in italics Gadotti's use of the masculine pronoun as his way of representing all of humankind, which is an example that demonstrates his failure to understand the many ways that cultural traditions are passed on at a taken-for-granted level of awareness.

Gadotti's inability to emancipate himself from the many ways in which the languaging processes of his own culture are intergenerationally reproduced relates to a more serious problem; namely, the way in which his eco-pedagogy reproduces the Western assumptions that make it a pedagogy of Western imperialism. Following the Freirean inspired idea that culture should not be transmitted from one generation to the next, Gadotti states that "globalization in itself does not pose a problem, since it constitutes an unprecedented process of advancement in the history of humankind" (p. 9). There could not be clearer statement of how Gadotti understands the ultimate goal of a eco-pedagogy: namely, a global culture that will replace the diversity of the world's cultures. But Gadotti is unwilling to examine the logic of the argument that an eco-pedagogy should emancipate individuals from the culture that is passed on and modified by each generation. That is, he is unwilling to consider the possibility that individuals, when relying upon their own construction of knowledge and values, might not lead to the planetary consciousness he envisions as averting ecological disaster. Nor is he willing to consider that many of the world's cultures have already worked out how to live within the limits of their bioregions. It should also be pointed out that the Gadotti vision, to be achieved by teachers who function as "transformative intellectuals," vastly over estimates the willingness of people to reject all the traditions of their culture (such as the Muslim, Hindu, Quechua, Zapotec, Inuit, and so forth)—even if they could become aware of how their taken-for-granted cultural patterns influence their perceptions, ways of understanding relationships and norms that guide their moral reciprocity with the natural environment. This part of the theory that underlies the Gadotti's eco-pedagogy is so naïve, uninformed by recent world events, and driven by a messianic ethnocentrism that it is surprising that he is already being looked to as a leading theorist on how education can contribute to saving the planet.

The language used in the talks given by Gadotti and Sandra Luciana Dalmagro (a women who works with the landless peasants of Brazil) highlighted the high-status political metaphors in the West: democracy, individualism, citizen, change. They both spoke about the importance of promoting decision-

making by individuals who understand themselves as subjects who can create their own history. What they did not acknowledge is that the individuals who have been emancipated from the intergenerational knowledge of their culture would exercise “democratic” decision making at the same emotive level as the customer who makes a choice between the vast array of products in a shopping mall. Similarly, neither Gadotti nor Dalmagro recognized that the concept of a citizen goes back to the early Greeks, which represented a profound shift from allegiance to the family and the tribe to that of the state. But the Western agenda that is to free the peoples of the world from the supposed backwardness of their cultures is also to include, as Gadotti put it, promoting within each individual the desire, indeed, their responsibility for changing the world. Following Freire’s thinking, the primary purpose of an eco-pedagogy is to create the desire on the part of each generation to change the world of the previous generation.

Gadotti’s extension of what he represented as Freire’s core ideas on the nature of an eco-pedagogy overcomes the silence about the environmental crisis that has long been a hallmark of Freire’s writings—as well as that of his many followers. But the basic contradictions inherent in Freire’s thinking, such as equating emancipation with what amounts to indoctrination to a Western way of thinking, remain. As in the past, this and other contradictions went unnoticed by most of the audience that included professors who stood up to praise Gadotti for helping them recognize the importance of using Freirean ideas in addressing environmental problems. Perhaps the most egregious contradiction, which also went unnoticed, is that the core assumptions underlying Gadotti’s extensions on what he kept referring to as Freire’s yet unpublished thoughts on an eco-pedagogy (the individual should be emancipated from the traditions of her/ his culture, the recognition that critical inquiry is the only source of empowering knowledge, that change leads to progress, etc.) are also the assumptions that the West’s industrial culture is based upon. Gadotti’s argument that globalization(that is, the development of a world monoculture) represents an advance in human history is also shared by such organizations as the World Trade Organizations and the neo-liberal politicians who want to transform every aspect of daily life (even the process of human reproduction) into a market opportunity. While Gadotti is very clear that his vision of a global culture is to be understood as standing in opposition to a global industrial culture, he does not understand that his ideal of the autonomous individual who has no intergenerationally acquired skills or knowledge of the culture’s patterns of mutual aid would be totally dependent upon the market to meet her/his daily needs. To cite one example, the individual who does not know what her/his culture understands about growing and preparing food, which is dependent upon a knowledge of the soil, weather

conditions, recipes handed down over generations, and rejects learning from this intergenerational knowledge as though doing so were a critical pedagogy inspired civic virtue, is more likely to be dependent upon industrial processed food that is destructive of both the environment and human health. To make this point more directly: although Gadotti is highly critical of the globalization of a market oriented culture, his way of understanding the primary goal of an eco-pedagogy would have the effect of creating the very form of individualism that can most easily be exploited as a customer.

I agree with Gadotti that the ecological crisis is the paramount issue that faces all of humanity, but only wish that Freire had not ignored it during the many years when his intellectual leadership influenced several generations of professors of education who are now unable to recognize that resistance to globalization is not achieved by promoting the same values and assumptions that are the basis of the current project of remaking the world in the image of the West. The irony is that Gadotti's recommendation that each individual should pursue her/his own grand journey, which miraculously is to lead to "planetary citizenship," could have easily been written by the speech writer for President George W. Bush. Transforming the diverse cultures of the world in the image of Western culture is not only an extension of western colonization; it will further accelerate the overshooting of the life sustaining capacity of the Earth's natural systems. This criticism should not be interpreted as saying that Gadotti supports President Bush's foreign policies. The issue is more fundamental in that both President Bush and Gadotti take-for-granted a common set of Western assumptions that different political groups can use to justify their own ends. But the significance of the differences are minor compared to the imperialistic nature of the assumptions they share in common; which is the need for one nation (a global mono-culture) where individuals, in pursuit of making their own history, reject the intergenerational knowledge that, in many instances, is the basis for resisting the further expansion of the industrial culture.

Educating for Eco-Justice and the Revitalization of the Commons

There is another way to think about the direction that educational reform should take—one that strengthens the ability of the world's diverse cultures to resist the environmentally destructive and cultural homogenizing forces that are now being globalized. This alternative approach to educational reform involves learning about (indeed, revitalizing) the traditions of the commons of these cultures that go back to the origins of humankind. Basically, the commons included what was available to all members of the culture: the water, air, woodlands, pastures, plants, animals, as well as other natural systems. The commons also included the symbolic aspects of the culture: narratives, knowledge of the cycles of natural systems, spoken and written symbol systems, craft knowledge, music, dances, moral norms and patterns of

reciprocity, knowledge of the medicinal characteristics of plants, and so forth. The commons were and still are varied depending upon the characteristics of the bioregion. And the cultures that developed over hundreds, even thousands of years of place-based and tested experience also led to different traditions that became a taken-for-granted part of the commons. The key issue here is not to interpret this brief overview of the commons as representing all the symbolic aspects of the commons as free of injustice and environmental abuse.

If we were to trace the introduction of enclosure in different cultures we would find that in many instances it was based on unjust relationships and was the cause of impoverishment (from our perspective). In a few instances it led to major cultural achievements. Basically, enclosure involved transforming what was shared in common (that is, available to all members of the community) into what was privately owned, into a commodity, and into a monetized activity or relationship. For example, what was previously passed on through mentoring relationships and is now dispensed by experts represents the transition from the non-monetized and non-privatized nature of the commons to the monetized and privatized nature of the market. Enclosure takes many forms, but essentially it involves exclusion, disenfranchisement, and dispossession in ways that advantage some groups over others. It also reduces collective and local decision making about the rules that will govern the commons by shifting the power of decision making to individuals and institutions that do not have to experience the consequences of their decisions. Thirdly, enclosure forces more aspects of daily life to come under the logic of a money economy—which marginalizes the practices of mutual exchange and barter relationships. It represents, in effect, the transition from work as an activity that is returned to viewing work as an activity that is paid.

In the contemporary world, the process of technological and economic globalization involves the further enclosure of the commons of both natural and cultural systems. The pressure to privatize water, land, forests, the gene lines of plants, animal and human blood, the minerals under the ground, and so forth, has increased dramatically in recent years. The enclosure of the symbolic aspects of the commons of different cultures is being driven by the same market forces. This includes the enclosure of education, first by the state, and now by private groups. It also includes health care, entertainment, sports, food, and even thought and communication which is now being mediated by computers and cell phones. The Western approaches to enclosure, driven by the merging of science, technology, and corporations, is contributing to the emergence of a planetary culture—a planetary culture that Gadotti

gives legitimacy to by his failure to recognize the dangers of using the same language and relying upon the same cultural assumptions as the neo-liberal politicians and institutions he opposes.

The most recent expressions of enclosure involve the spread of genetically modified seeds that require the use of super powerful pesticides that kill- off the nearby birds, animals, wild plants, and the micro-organisms in the soil. To cite another example, the further automation of the process of work that further reduces the need for workers (which is an important form of enclosure) also continues the process of dispossessing workers of their craft knowledge and skill. As the intergenerational knowledge that sustained the commons for generations disappears under the pressure of the liberal ideology that promotes the progressive idea that individuals should construct their own knowledge by exploring the depths of their own interior universe more aspects of daily life will require participation in a money economy. In short, enclosure of the natural systems that sustained human communities for centuries, and the political economy that determines the distribution of wealth within and among cultures, are major contributors to the poverty that is increasing around the world.

Understanding how educational reform can contribute to the revitalization of world's commons is becoming more urgent as the automation of production reduces the need for workers—which is now being felt even in countries such as Mexico and China. The myth of unending progress and a rising material standard of living is fast being challenged even in Western countries where pension funds are diminishing, unemployment is rising, and local decision making about conserving the commons is being overruled by international treaties and institutions such as the World Trade Organization.

But the forces resisting the educational reforms that address the revitalization of the commons are both powerful and numerous. Public schools and universities, for example, continue to reinforce the mind set that underlies the globalization of industrial culture. The complicity of educators in resisting the revitalization of the commons can be seen in the way the professors and students listening to Gadotti applauded wildly when he finished his talk on how an eco-pedagogy contributes to the creation of a global culture of anomic individuals. Their receptivity to the Gadotti's vision and representation of Freire's last thoughts on the need for an eco-pedagogy was in no way extraordinary from the way most public school teachers and university professors think. The incessant quest for new ways of thinking, technologies, and values is a dominant characteristic of Western education—at all levels. The other high-status forms of knowledge promoted in Western educational institutions that denigrate the forms of knowledge and relationships that sustain the commons include the

emphasis on the abstract and often formulaic knowledge of experts, the technologies that are based on Western science and are generally uninformed by a knowledge of the culture they are introduced into, and the authority of printed texts (and now computer mediated data). These aspects of the liberal mind-set are further sustained by ignoring the differences in the knowledge systems of different cultures, by relying upon an evolutionary explanatory framework that represents Western cultures as more advanced and better adapted to survive than the indigenous cultures that live by ecologically informed practices. The hubris of Western thinkers, including prominent scientists such as E. O. Wilson, Francis Crick, and Stephen Hawking, is partly responsible for imposing upon the rest of the world the technologies that are both culturally and environmentally destructive.

The generations that have been educated to think in ways that support a consumer and technology dependent lifestyle lack the language that would enable them to name the non-monetized knowledge, activities, and relationships in their own communities. When limited in this way, they are unable to understand the importance of what remains of the commons—including the fact that the commons provides alternatives for the newly unemployed or under-employed to live productive and meaningful lives on much less money than previously thought. Unlike the monetized aspects of everyday life, the commons involves mutual support and patterns of reciprocity that will be even more needed as we move toward the global state of consciousness that accepts unemployment and poverty as the price that must be paid for technological progress.

There is another problem connected with the way Western educational institutions marginalize or are completely silent about the nature and importance of the commons-- and the dangers that accompany the further enclosure of the commons. That is, ignorance of and indifference to the commons results in the collective failure to recognize when vital aspects of the commons are being enclosed—such as the current process of privatizing municipal water systems, the expansion in the corporate ownership of the airwaves, and in the further industrialization of human reproduction and the plants we rely upon for food. Ignorance of the need to protect the commons of other cultures, including their languages that encode their accumulated knowledge of sustainable practices within their bioregion, leads not only to the loss of cultural diversity in approaches to self-sufficiency but also to the loss of biodiversity itself.

The revitalization of the commons is important for reasons that go beyond the non-monetized mutual support systems that represent sites of resistance to the expansion of industrial culture. It is also important because the commons represent a refuge for people who possess the skills that have

been marginalized by the industrial culture, who find that work is no longer available due to automation and outsourcing, and who want to base their lives on meaningful social relationships and community enhancing activities. The revitalization of the commons can also be understood as having both a political and moral justification. That is, the non-consumer, non-enclosed aspects of the commons can be justified on the grounds that it contributes to eco-justice. And by extension, education that contributes to the revitalization of the commons can be understood as an eco-justice pedagogy that stands in sharp contrast to the romantic vision of Gadotti where each individual undertakes “the grand journey in his interior universe and in the universe that surrounds him.” Anyone comparing the eco-justice pedagogy being outlined here with the eco-pedagogy of Gadotti also needs to keep in mind his goal of fostering citizenship in a “single nation” that is to be based on a “planetary consciousness.” It is difficult to avoid interpreting his solution to the further degradation of the environment, and what he means by a “planetary consciousness, as anything other than a world monoculture based on Western values.

An eco-justice pedagogy will contribute in the following ways to resisting the further enclosure of what remains of the world’s commons, and to addressing the consequences of economic imperialism. First, by fostering a greater awareness of the toxic contamination that results from the industrial process, and how the disposal of the toxic waste is influenced by the culture’s social status system, it will give the issue of environmental racism as more central place in the curriculum. Second, by helping the students understand the nature of the commons and how they differ in terms of culture and bioregion, the forces of enclosure, the many adverse consequences of different forms of enclosure, an eco-justice pedagogy provides the knowledge necessary for the students’ communicative competence. Furthermore, these understandings will enable them to recognize that there are alternatives to being totally dependent upon a money economy that is increasingly characterized by the double bind where the cost of paying for the basic necessities of daily life continues to increase while the opportunities for work (even low paying ones) continue to disappear.

Third, by helping students recognize the community-centered alternatives to a life of near total dependency upon consumerism, and the environmental impact on Third World countries that results from the hyper-consumerism in the West, an eco-justice pedagogy contributes to reducing the domination of the South by the North. Fourth, by helping students to understand the ecological consequences of globalizing a consumer dependent lifestyle and by helping them to understand the consequences of losing many of the world’s ecologically informed knowledge systems, an eco-justice

pedagogy helps to ensure that the prospects of future generations have not been diminished by a degraded environment. Fifth, by contributing to a less consumer dependent lifestyle, an eco-justice pedagogy contributes to the revitalization of local democracy and to what Vandana Shiva has referred to as earth democracy—that is, the right of natural systems to renew themselves.

If we consider the ideological differences between the Gadotti's approach to an eco-pedagogy and an eco-justice pedagogy, we find that while Gadotti is critical of industrial culture, he nevertheless bases his prescriptions for reform on the same liberal assumptions that are used to justify economic globalization. That is, globalization for both the proponents of industrial culture and for Gadotti is viewed as the highest expression of human development. In addition, both the proponents of economic globalization and Gadotti agree that cultural differences should be replaced by a single way of knowing. And while they differ on the ends that are to be served by critical reflection; they also agree that intergenerational knowledge limits the ability of each individual to rename the world and to be free of the constraints of the patterns of reciprocity that characterize intergenerationally connected communities. The anomic form of individualism that can be more easily manipulated by the media turns out, upon close examination, to be identical to the individual who lives the self-centered life of exploring "his interior universe" and is both ignorant of and indifferent to the traditions of mutual support that are the source of food, shelter, political freedoms, and narratives that are the basis of the community's moral codes (which may not always be in line with our moral priorities). To bring out another commonality between the proponents of globalizing the industrial/enclosure oriented culture and the planetary culture being advocated by Gadotti: while Gadotti expresses deep concern about the destruction of natural systems he shares the same indifference to what is the central question that should be asked as the life-supporting systems that constitutes the commons come under even greater assault. Namely, neither the proponents of economic globalization nor Gadotti ask what needs to be conserved as the basis of resisting the further degradation of the environment and the spread of poverty. This is also a question that Freire and his followers never asked.

When the enclosure of the commons was not the result of a naked power grab, it has been justified as contributing to social progress. The privatizing and monetizing of the natural environment, the airways, health practices, gene lines, and so forth are largely being justified in terms of the latter. A strong case can be made the international trade agreements currently forcing people off the land are a mixture of the two. Seldom has enclosure been justified on the grounds that it

conserves what contributes to the well-being of the human and natural community. The current efforts of various conservation groups, such as the Nature Conservancy and the Conservation Land Trust, to purchase land in order to return it to the public should not be viewed as examples of enclosure, but rather as expanding the commons. With the environment now undergoing changes that could not have been imagined a mere 30 years ago (the melting of the polar ice caps, the collapse of fisheries previously thought to be inexhaustible, the spread of toxic chemicals in our bodies and through the environment, etc.) it is now necessary to recognize that the language of liberalism (progress, individualism, emancipation, development, global village and planetary consciousness) excludes an alternative vocabulary that enables us to consider the central concerns of environmentalists, Third World activists, and people in the West whose lifestyles contribute to sustaining the commons. These latter groups are concerned with “conserving” the diversity of species, cultural ways of knowing that have been shaped by inhabiting a bioregion over hundreds even thousands of years, and the intergenerational knowledge that has been the basis of community self-sufficiency. These groups are now under intense pressure, as documented in Helena Norberg-Hodge’s Ancient Future: Learning from Ladakh (1992), Frederique Apffel-Marglin’s (with PRATEC) edited book, The Spirit of Regeneration: Andean Culture Confronting Western Notions of Development (1998) to adopt the Western model of development, which means to accept the enclosure of their traditions in exchange for Western technologies and consumer goods. The resistance to the Western model of development, as documented in Bonfil Batalla’s Mexico Profundo (1996) and which was the central focus of indigenous activists attending the recent conference on “American Profundo” in Mexico City, is also oriented toward conserving the traditions essential to cultural identity, self-sufficiency outside of the Western money economy, and to conserving natural systems.

The word “conserving” and the phrase “mindful conservatism” (Bowers, 2003) are not part of the vocabulary of Gadotti for achieving a more sustainable world. Indeed, when the word conservatism appears in the writings of both Gadotti and Freire, it is equated with the evils of capitalism. In his talk at the international conference Gadotti said there was no possibility of having a dialogue with the conservatives who run the transnational corporations. What he and the many followers of Freire who also identify corporations as conservative institutions fail to understand is that industrial culture is based on the values and assumptions of Classical Liberal thinkers such as John Locke, Adam Smith, and John Stuart Mill—and more recently on the re-emergence of Social

Darwinist thinking that is sweeping through university departments. In its statement of guiding principles that appears on the web-site of the CATO Institute (which is the most influential liberal think-tank in America), the point is made that only in America is market-oriented liberalism interpreted as the highest expression of conservatism.

This market-oriented industrial culture is being given further legitimacy by scientists who are extending various interpretations of evolution in ways that explain which cultural memes meet the test of Darwinian fitness and thus are genetically driven to become the basis of a world monoculture. It is also important to recognize that both Gadotti and Freire (1974) also rely upon a theory of evolution to justify their vision of a global consciousness. But they are not alone. The transformative learning theories of Edmund O'Sullivan and William Doll, Jr., are also based on an interpretation of evolution that incorporates the Western myth of linear progress. Aside from the fact that the process of natural selection is the basis of diversity, while the theory of transformative learning assumes the world-wide adoption of Western assumptions—and thus would lead to a world monoculture, there is another irony that is overlooked by proponents of transformative learning such as Gadotti, Freire, O'Sullivan, and Doll. While transformative learning is a vision to be realized in the future, the spread of the West's industrial, consumer-oriented culture is the most transformative force in today's world.

The failure of Gadotti to recognize the ideological roots of industrial culture, and how many of the liberal assumptions he shares in common with it—even as he criticizes its exploitive nature, explains why he does not recognize that critical reflection should also be used in the service of revitalizing the commons. While they equate critical reflection with individuals creating their own history, as both Gadotti and Freire put it in their separate writings (especially read Freire's discussion on page 199, The Politics of Education), an eco-justice pedagogy is based on the recognition that conserving the commons, including earth democracy, is partly dependent upon the exercise of critical reflection. For example, an eco-justice pedagogy involves reliance upon critical reflection as part of the process of clarifying what is being overturned (enclosed) by the introduction of computers, the use of robots in the work place, the genetic engineering of plants and animals, the further merging of universities and corporate culture, the imperialism of the Western entertainment system, the increasing reliance on the industrialization of food, and the way current politicians create demons in order to create a Nazi-like state of compliance on the part of the public. In these examples, the outcome of critical reflection might lead to adopting new ways of doing

things—which would mean that some traditions would be seen as in need of being changed, and in other instances critical reflection would lead to conserving traditions that are important to the community. But an eco-pedagogy is not based solely on critical reflection; it also recognizes that the viability of the commons also depends upon other ways of knowing and intergenerational renewal such as mentoring, the use of narratives, embodied learning, the multiple languaging processes that largely pass on the taken-for-granted assumptions and behavioral patterns of the culture—which are often in need of being examined critically (such as the cultural assumptions that Gadotti takes for granted).

For readers who are uncomfortable with the word conservatism, and who are not aware that most groups who identify themselves as conservatives are actually in the liberal tradition of thinking, they might consider whether there are any aspects of their legal system, including Constitutional rights they would want to conserve. In terms of the United States, would they want to “conserve” the tradition of a trial by a jury of peers? Would they want to conserve the tradition of an independent judicial system, including an independent Supreme Court? Or would they consider the control of the Supreme Court by a political party the latest expression of progress? Would they want to conserve the gains made over the last century in the area of women’s rights and protections in the workplace—or would they be willing to let powerful interest groups transform these gains into a more “progressive” development such as the recent effort to eliminate overtime pay for workers. The latter effort was justified on the grounds that it would enable corporations to be more competitive—a progressive development in the eyes of liberal, free-market advocates. And on a more personal level, would the reader want to “conserve” the traditions of food preparation within their family and cultural group or is industrially processed food to be embraced as the latest expression of progress and the merging into a planetary consciousness?

An eco-justice pedagogy is based on the need to conserve cultural traditions that enable people to reduce their dependence on a money economy as well as the size of their ecological footprint. But it is unlikely that the practitioners of an eco-justice pedagogy will succeed in rectifying the use of our political vocabulary on their own. They need the help of other groups that are concerned about the loss of cultural and species diversity, and the growing threat of a global culture based on the Western idea of the autonomous, self-creating individual. Ideally, if public schools and universities would help students understand that the words “tradition” and “conservatism” are too complex to be reduced to the formulaic thinking that now passes for an empowering political

discourse it might then be possible to recognize that the history of liberalism co-evolved (I use the term deliberately) with the growth of the Industrial Revolution and that the hubris it is based upon accounts for its role in furthering Western imperialism. It might also be possible for students to understand the many forms of conservatism, and thus be able to discriminate between what is reactionary, what is the expression of “traditionalism” (that is, the mistaken belief that traditions should not change), and what is oriented to conserving the non-monetized forms of knowledge, relationships, and activities that represent sources of resistance to the further enclosure of the commons of different cultures.

The hubris of Western liberalism and the hubris that underlies the Gadotti’s approach to an eco-pedagogy should lead us to ask the question of when does a reform oriented educator cross the line by becoming an agent of cultural invasion. This question could be broadened to include any cultural outsider (the scientist, development specialist, missionary, etc.). Here, I shall focus on the differences between an eco-pedagogy and an eco-justice pedagogy.

A key characteristic of the eco-pedagogy advocated by Gadotti, and that corresponds to Freire’s vision of a world of constant change, is that it is based on a deficit model of culture. The deficit (backwardness, wrongly developed, lacking in adherence to Western values) is to be overcome as the teacher, as an agent of cultural transformation, reinforces the individual’s own determination of ideas and values (the journey into the “interior universe”) and reliance on critical reflection as the basis for membership as “planetary citizen.” That the members of Islamic, Hindu, Buddhist, Christian, and thousands of indigenous cultures (many of the latter having already worked out a sustainable environmental ethic) will allow themselves to be transformed by eco-pedagogues to fit the Western Enlightenment ideal of the critically reflective, self-determining individual is totally unrealistic. The romantic perception of the Earth as “a single community” blinds Gadotti from recognizing that many non-Western cultures are already ecologically-centered, and that we should be learning from them about how to live in ways that sustain the commons. Gadotti’s blanket formula for changing other cultures to fit his ideal of a single form of consciousness, what he calls a “planetary consciousness,” indicates that he is blinded by his extreme ethnocentrism (which he shares with Freire) and the hubris that leads him to dictate how the world’s cultures should reform themselves in order to save the planet.

The role of the eco-justice oriented educator is profoundly different. As the revitalization of the commons requires addressing all five aspects of eco-justice that have particular relevance for guiding

educational reform, the teacher's role becomes that of a mediator—and not a “transformative intellectual” as Henry Giroux put it. As a mediator between cultures, including the differences within Western culture, the educator's responsibility is to help the different communities (and cultures) to understand the cultural transformations that are likely to result when Western technologies and systems of expert knowledge are adopted. Clarifying these potential transformations involves fostering a community-wide discussion of the assumptions that underlie Western approaches to development, and how the adoption of Western values and technologies will affect the commons as they know it. Mediating thus involves making explicit what lies behind the language of progress and modernization. The educator who made explicit for Quechua teachers the forms of cultural knowledge that cannot be digitized, as well as how adopting computers in schools involves both forms of enclosure and becoming dependent upon a money economy was acting as a mediator. Similarly, the educator who explains to Canadian bureaucrats why the Inuit, as a subsistence culture, need to possess rifles and why they do not want child-care centers, as well as help the Inuit elders understand the cultural assumptions of the bureaucrats, is playing the role of a cultural mediator. The decisions about their collective future is thus left to them to make.

An eco-justice pedagogy can only be effective in clarifying the nature of cultural domination as the educator learns from the community's (culture's) approaches to sustaining the commons. This mediating role also extends to the educational process within Western contexts. That is, the curricular focus would be on clarifying the ecological implications of different traditions such as the non-monetized traditions within the community and the industrial traditions of enclosure. While Gadotti's proposal for an eco-pedagogy and an eco-justice pedagogy are based on similar concerns about the destruction of the Earth's ecosystems, they represent profoundly different approaches to understanding the role of education in resisting the further enclosure of the commons. Given Gadotti's vision of how the world's cultures should be transformed, it is clear that he has crossed the line—and is dedicated to promoting the aspects of Western imperialism that paves the way for the globalization of the industrial culture he rejects.

References

Batalla, Bonfil. 1996. Mexico Profundo: Recaliming a Civilization. Austin, TX.: University of Texas Press.

- Apffel-Marglin: Frederique, with PRATEC (editors). 1998. The Spirit of Regeneration: Andean Culture Confronting Western Notions of Development. London: Zed Books.
- Bowers, C. A. 2003. Mindful Conservatism: Rethinking the Ideological and Educational Basis of an Ecologically Sustainable Future. Lanham, Maryland: Rowman & Littlefield.
- Freire, Paulo. 1974. Pedagogy of the Oppressed. New York: Seabury Press.
- _____. 1974. Education for Critical Consciousness. New York: Seabury Press.
- _____. 1985. The Politics of Education: Culture, Power, and Liberation. South Hadley, MA.: Bergin & Garvey.
- Gadotti, Moacir. 2000. "Pedagogy of the Earth and Culture of Sustainability." Sao Paulo, Brazil. Instituto Paulo Freire. Pp. 1-11.
- Norberg-Hodge, Helena. 1991. Ancient Futures: Learning from Ladakh. San Francisco: Sierra Club Books.

Chapter 6 The Case Against John Dewey as an Environmental and Eco-Justice Philosopher

My participation in a recent conference on Pragmatism and Values held in Stara Lesna, Slovakia rekindled my doubts about the relevance of Dewey's ideas for addressing an ecological crisis that has many dimensions beyond that of global warming. I say rekindled my doubts, as they were first formed by Richard Rorty's attempt to reconcile the contingent knowledge and values of the ironist individual with his anthropocentric interpretation of solidarity.¹ Although the participants at the Slovakian conference had been exposed in their individual lives to frequent media coverage of global warming, depletion of the world's fisheries, and evidence that industrial chemicals are changing the reproduction patterns of humans as well as other species, not one of the participants attempted to relate Dewey's ideas to what is now the most problematic set of issues we face.¹ This is particularly surprising as Dewey made problematic situations the starting point and central focus of experimental inquiry. My more recent reading of the essays in Environmental Pragmatism (1996), edited by Andrew Light and Eric Katz, further confirmed my concern that the attempt to represent Dewey as an important environmental philosopher will have little, if any, influence on environmental thinkers.

In the chapter titled “Nature as Culture: John Dewey’s Pragmatic Naturalism,” which appears in Environmental Pragmatism, Larry A. Hickman explains how Dewey can be interpreted as an evolutionary naturalist, and even as laying the basis for an epistemology that situates inquiry within contexts where nature and the human community are integral aspects of problematic situations—and thus to the reconstruction of experience. If I allow myself to accept the conceptual boundaries that Hickman and the other contributors to Environmental Pragmatism take-for-granted, I can even appreciate Dewey’s argument that the experimental nature of what he termed the “method of intelligence” is enhanced by an educational process that provides for the widest possible participatory decision making. The problem is that I cannot accept these conceptual boundaries. This is because Dewey’s epistemology, as well as the recent efforts to revive his philosophy, are too limited for addressing the cultural roots of the ecological crisis. Even more serious is that his ideas, even when his efforts to naturalize intelligence are considered, cannot be used to clarify and give legitimacy to more ecologically sustainable cultural practices. Indeed, I shall argue that the characteristics of culture that are excluded from consideration by Dewey and his current followers are at the center of a double bind that would arise if his epistemology were to be universalized. That is, I shall argue that his epistemology, with its emphasis on growth in the capacity to reconstruct experience and thus to replace spectator based knowledge with his method of intelligence, would represent yet another expression of western colonialism—and that this would further undermine the ability of many cultures to avoid the consumer/technology dependent lifestyle that is one of the major contributors to the ecological crisis.

The ideas of Dewey and his current interpreters are based on a fundamental misunderstanding of cultural diversity, the nature and role of mythopoetic narratives and the resulting root metaphors that encode a culture’s way of understanding relationships, and the intergenerational nature of traditions. I shall address each of these aspects of culture in order to show that key aspects of Dewey’s philosophy cannot be used as a basis for affecting the deep cultural changes that the ecological crisis will force us to make.

1. The Diversity of Cultural Epistemologies:

It is important to acknowledge at the outset that Dewey’s references to culture are based on an evolutionary framework that represents cultures as either backward or advanced. Backward cultures, according to Dewey, rely upon a spectator approach to knowledge as well as fixed truths and values.

In Democracy and Education (1916) he states that the method of intelligence of savages is “plainly absurd—so absurd that we fail to note that savages are simply falling back upon habit in a way that exhibits its limitations”.² Advanced cultures, on the other hand, are oriented toward growth, experimental inquiry, democracy, and what Michael Eldridge terms “secularity”.³

The following is typical of how Dewey understood the nature of culture. As he puts it in Art as Experience (1959 edition) “as the developing growth of an individual from embryo to maturity is the result of interaction of organism with surroundings, so culture is the product not of efforts of men put forth in a void or just upon themselves, but of prolonged and cumulative interactions with environment”.⁴ This explanation appears to reaffirm the argument that Larry Hickman makes in Environmental Pragmatism about the biocentric nature of Dewey’s philosophy. While the culture/Nature connection is important in the current debate over whether Dewey was an anthropocentric thinker, the more important issue is that this and other similar statements of Dewey reflects an evolutionary (developmental) way of understanding culture. And this evolutionary framework serves to delegitimize the efficacy of other cultural epistemologies. Dewey’s failure to take account of differences in cultural ways of knowing, and thus approaches to community and human/Nature relationships, can be seen in the way the lectures he presented at the Imperial University of Japan in 1919 omitted any reference to the cultural way of thinking of his hosts. Statements such as “change is associated with progress rather than lapse and fall” and “growth itself is the only moral end” must have sounded strange, even incomprehensible to those in the audience who had not already become westernized.⁵

It also needs to be pointed out that Dewey’s singular focus on what he called the “method of intelligence” totally marginalized the cultural ways of knowing that characterized the neighborhoods of Chicago and New York, which was part of the environment he interacted with on a daily basis. The question that needs to be asked is: Was his vision of democracy based on the assumption that Italian, Irish, Jewish, and Polish immigrants, to cite the larger ethnic groups, should abandon their ways of knowing and traditions that served as the basis of their identity and patterns of moral reciprocity in order to be participants in the new democratic social order? A second question also needs to be asked: Do the contemporary followers of Dewey expect the members of the world’s major cultures to abandon their ways of knowing in order to embrace Dewey’s method of intelligence? It is interesting to note that E. O. Wilson, another advocate of an evolutionary interpretation of culture, shares the Deweyian assumption that the experimental method of western

science should become the basis of knowledge, values, and even the religions of the world's cultures.⁶

The multiple moral, political, and environmental problems connected with universalizing Dewey's pragmatism, as well as the revisionist interpretations found in Rorty's Contingency, Irony, and Solidarity (1989) and Michael Eldridge's Transforming Experience: John Dewey's Cultural Instrumentalism (1998) are simply ignored. They are even omitted from the various interpretations of the usefulness of pragmatism found in Environmental Pragmatism. The failure to address these issues is especially ironic when we consider that many of the world's cultures (Western Apache, Balinese, Zapotec—to cite just of few) represent cultural epistemologies and moral systems that involve lifestyles that have a smaller adverse impact on their bioregions.

Both Rorty and Eldridge deserve to be faulted even more than Dewey as their writing is being done in a era marked by widespread media coverage of, as well as scientific reports on, the rapid decline in the viability of natural systems. Rorty's ironist individual, as well as his category of "final vocabulary" which serves the same obfuscating function as Dewey's category of the "spectator theory of knowledge," would be an affront to many cultures that have much to teach us about living less consumer-centered and technology dependent lives. Instead of juxtaposing the "final vocabulary" with the ironist individual who worries that "she has been initiated into the wrong tribe, and taught to play the wrong language games".⁷ Rorty should have explained why the western assumptions underlying his vision of a liberal society are more worthy than the assumptions that have enabled many cultures to develop complex symbolic systems for governing moral relationships within their communities and with the environment. His assumptions about equating change with progress, the autonomous individual whose major focus is on self-creation, and an extreme anthropocentrism that appears rooted in nineteenth century Classical Liberalism are also the assumptions that were the basis of the Industrial Revolution. While Eldridge does not argue for Rorty's version of relativism, the subtitle of his book, "John Dewey's Cultural Instrumentalism" incorrectly suggests that differences in cultural epistemologies will be a major focus of his analysis. What Eldridge does is to appropriate the word culture without any recognition of the epistemological differences between cultures. Indeed, he fails to consider the deeper implications of referring to Dewey's epistemology as a "cultural instrumentalism." That is, he fails to explain the culturally specific assumptions it is based upon, and to acknowledge that the relativism that is at the center of

Dewey's epistemology is guaranteed by another culturally specific assumption: namely, that "experimental intelligence" will always lead to progressive changes.

2. Mythopoetic Narratives and Root Metaphors:

The failure to situate Dewey's philosophy within the context of the world's other cultural epistemologies represents a serious limitation. Even more serious is the failure of the contributors to Environmental Pragmatism to acknowledge the cultural epistemologies of ecologically centered cultures, and thus to explain why the shared characteristics of these epistemologies should be replaced by Dewey's experimental mode of inquiry. A comparison with the cultural epistemology of the Balinese⁹, Western Apache¹⁰, and the indigenous Andean cultural groups¹¹, or any number of other cultures that have not adopted the western mode of production and consumption would have helped to highlight Dewey's failure to understand that the basis of moral reciprocity governing the relationship and practices of these cultures within the Natural world is grounded in their mythopoetic narratives. The Balinese temple system, which regulates the allocation of water to the rice paddies on an ecologically sustainable basis, is rooted in their mythopoetic narratives that explain how the temple ceremonies balance the forces of good and evil—which in turn leads to a culture that has made the arts of poetry, dance, and theatre a central aspect of everyday life. The mythopoetic narratives that connect the specific physical features of the Western Apache bioregion with the stories of ancestral experiences, which are encoded in the place names, connect a knowledge of place with the moral insights of the ancestors. Learning the names of the landscape also involves learning the moral codes that are to guide the behavior and thought of the Western Apache. In the case of the Quechua mythopoetic narrative, the spirit world, human communities, and natural world are interconnected and, according to Frederique Apffel-Marglin, form a living whole. As she explains it, "the three realms meet at the site of the chacra, the field where the peasants raise their crops but also any site where the human community, the natural community, and the community of deities converse and reciprocate in order to regenerate life".¹² Before dismissing these cultures as being backward, and my reference to them as the expression of naïve romanticism, it should be kept in mind that the Balinese tried and rejected the "Green Revolution" as unworkable even though it was based on an experimental mode of inquiry, and that the Quechua culture goes back at least 10,000 years and is the eighth most productive center of cultivated plant species in human history.

For Dewey and his present interpreters, mythopoetic narratives are the basis of ignorance, and are to be replaced by the method of intelligence. That is, ideas and values are to be assessed in terms of consequences that follow from acting upon them. As Dewey succinctly put it, “experimental empiricism in the field of ideas of good and bad is demanded to meet the conditions of the present situation”.¹³ In place of wisdom about relationships, first encoded in stories of creation that represent humans and Nature as part of the same spiritual/moral world and tested and refined over generations of communal experience, Dewey and his environmentally oriented interpreters want the immediate experience of each generation to be the basis of moral insight. As Kelly Parker puts it, “For the pragmatists, ‘participatory democracy’ is a political expression of the metaphysical idea that reality is involvement and transformation. Because the public consists of a vast plurality of people and things valued, and because the world is changing at every moment, the ways and means of providing for the individual and the common good have to be experimentally determined” (italics added).¹⁴ Michael Eldridge, who fails even to mention the environmental crisis, explains Dewey’s approach to reconstructing the moral values that guide relationships in the following way: “Criticism was the instrument of his humanistic naturalism. But it was not just a means for Dewey; it was also an end—a way of associated living that would allow us to constantly revise the present in terms of projected better possibilities and ensuing results as simultaneously critical, intelligent, democratic, humanistic, and secular”.¹⁵ And Rorty’s revisionist interpretation of Dewey led him to claim that “there are no nonhuman forces to which humans should be responsible”.¹⁶

While many of the world’s cultures are based on mythopoetic narratives that have had an environmentally destructive impact, and are used to justify the denial of basic human rights to many of their members, the fact remains that there are other cultures that have developed moral values and technological practices that represent an understanding of the interdependence of humans and the natural world. In some cases, they even regard the natural world as sacred, and thus not reducible to a natural “resource”. Given the existence of these ecologically centered cultures, and the fact that many of them are actively resisting being further colonized by western technologies and modes of thinking, the question arises as to whether the current followers of Dewey have considered whether an ecologically sustainable future would be better assured by promoting Dewey’s experimentalism on a world wide basis. There is also the question of whether his followers understand that the experimental method of problem solving involves a political process that does not always lead to a new and higher level of consensus, and that the outcome, when practiced in the real life situations, is

not always democratically determined. One of the consequences of recognizing only one method of intelligence is that what Dewey termed the “recalcitrant minority” might decide to ignore the importance of participatory decision making and how the majority perceive the common good. Recent political events bring home a point that Dewey and his followers have never acknowledged: namely, that in some areas of public decision making the position taken by the “recalcitrant minority” was the one that should have prevailed. Initially, it was a minority of Americans who resisted the Viet Nam War; and it continues to be a minority that is resisting advances in biotechnology that promise to change the basis of life as we know it. In effect, Dewey’s epistemology leads to opening all aspects of everyday life to the political process, and thus, if universalized, would undermine those cultures where decision making is carried out within the framework of morally coherent mythopoetic narratives. In the case of many indigenous cultures, the mythopoetic narratives underlie their ecologically sustainable practices. It would also undermine the moral authority that underlies the efforts of various groups in American society who are attempting to address environmental and social justice issues. Dewey’s epistemology would require that the moral values used to legitimate various political decisions emerge from the same experimental process of inquiry that is to determine the ideas that are to be acted upon; thus the moral values would be treated as relative until validated by decision making process of the group.

There is another problem with Dewey’s epistemology that his current interpreters have failed to address. Dewey did not understand how language encodes and carries forward over time earlier patterns of metaphorical thinking. Edward Sapir, a contemporary of Dewey, was writing about the connections between language and cultural ways of knowing during the same period of time (the late nineteen twenties and early thirties) that Dewey was writing his most important books on a naturalistic view of intelligence. It is interesting to speculate on whether a knowledge of Sapir’s writings might have led Dewey to alter the arguments he made in Knowing and the Known (1947) that “the naming of the observation and naming adopted is to promote further observation which in turn will advance and improve. This condition excludes all namings that are asserted to give, or that claim to be, finished reports on reality”.¹⁷ Simply stated, Dewey was proposing that words should be emptied of their historical content in order to avoid distorting the connections between direct experience and the exercise of intelligence. At the same time Dewey was writing The Quest for Certainty, which was based on the assumption that the method of intelligence is free of hidden cultural influences, Sapir was giving a paper at the 1929 joint meeting of the Linguistic Society of

America and the American Anthropological Association in which he explained that “the ‘real world’ is to a large extent unconsciously built up in the language habits of the group.” He went on to say that “the worlds in which different societies live are distinct worlds, not merely the same world with different labels attached....We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretations” (italic added).¹⁸ Rorty was more aware of the reproductive characteristics of language, but mistakenly incorporated Donald Davidson’s misunderstanding of the metaphorical nature of language when he should have taken seriously the writings of Richard Brown, Mark Johnson, and George Lakoff on the connections between the metaphorically layered nature of language and thought.¹⁹

In spite of Hickman’s attempt to establish that Dewey was not an anthropocentric thinker, and the attempts by the other contributors to Environmental Pragmatism to put environmental philosophy on a pragmatic footing, they all continue the Dewey/Rorty tradition of ignoring the role that language plays in reproducing the culture’s taken-for-granted ways of understanding relationships—including how to think about the attributes of the participants in the relationship.. As I point out in my earlier critique of Rorty’s misunderstanding of the metaphorical nature of language, the root metaphors of a culture, which are often based on its mythopoetic narratives, frame the process of analogic thinking, and over time become encoded in the iconic or image metaphors that largely are a taken-for-granted part of daily thought and behavior.²⁰ Examples of root metaphors derived from western mythopoetic narratives include patriarchy, anthropocentrism, and the autonomous individualism. Root metaphors that had their origins in powerful evocative experiences and philosophical writings (which were themselves influenced by taken-for-granted root metaphors) include linear progress, mechanism, economism, and, now, evolution. Root metaphors provide the meta-cognitive schemata or interpretative framework, which can be seen in Dewey’s thinking. He challenged the prevailing assumption about individualism, and whether his thinking is based on the root metaphor of anthropocentrism is now being debated by the contributors to Environmental Pragmatism. However, the root metaphors of linear change and evolution provided the meta-cognitive schemata that enabled Dewey to assume that the experimental method, and the political/educational process that is required to carry it out in a participatory setting, would always lead to more progressive and intelligently based relationships. Dewey’s genderized use of language also indicates that he took for granted the schema or interpretative framework dictated by the root metaphor of patriarchy.

There is yet another characteristic of language that brings into question Dewey's understanding of how moral norms can be based on the method of intelligence. It also has special relevance to any discussion of environmental ethics. Not only does language encode a cognitive schemata that frames how we think, it also carries forward the culture's understanding of the moral norms that govern relationships. The root metaphor of patriarchy framed how the attributes of men and women were to be understood. These attributes were, in turn, encoded in the process of analogic thinking and in the iconic metaphors where it was automatically understood that the engineer, scientist, historian, and carpenter were male activities. Similarly, anthropocentrism was encoded in the language in ways that led to thinking of the environment as a resource, as a wilderness that had to be brought under human control, and as property that can be individually owned. The recent emergence of "ecology" as an alternative root metaphor now leads to thinking of wilderness as the natural condition of diversity and self-regeneration that needs to be preserved—and recovered. To cite another example, the use of evolution as a root metaphor possesses important explanatory power in the area of natural phenomena, but leads to exceedingly problematic thinking when extended to areas of cultural beliefs and practices—as the writings of E. O. Wilson and Richard Dawkins demonstrate.

The implications of not understanding how the metaphorical nature of language carries forward earlier culturally specific forms of intelligence deserves more extended treatment in any assessment of Dewey as an environmental philosopher. However, I want to conclude this part of the discussion by pointing out the double bind in trying to make the case that Dewey is a "biocentric thinker" when his thinking is based on two of the root metaphors that were taken-for-granted by the promoters of the Industrial Revolution: the interpretative framework that represented change as the linear expression of progress, and evolution as way of justifying the colonization of non-western cultures deemed to be backward and, in today's language, "undeveloped." The question that needs to be addressed by philosophers arguing that Dewey is an environmental philosophy is this: will the adoption of Dewey's epistemology, and its underlying root metaphors, by cultures based on more ecologically centered mythopoetic narratives (root metaphors) contribute to a more sustainable future?

3. Tradition:

In assessing Dewey's contribution to living more ecologically sustainable lifestyles it is important to emphasize that his epistemology lays out a method of experimental inquiry that is to be applied in every aspect of a daily life that is constantly caught in the crosscurrents of change. No values or behaviors rooted in intergenerational experience are to be understood as being more

inherently ecologically sound than others. In effect, the ongoing experiences of the present generation, guided by experimental inquiry, is to determine what constitutes the values and ideas that are to be the basis of behavior. To put it another way, Dewey's method of intelligence, as well as what the contributors to Environmental Pragmatism propose as the pragmatic basis of an environmental philosophy, involves the continual experimentation with the conceptual and moral foundations of experience—with the result that the immediate experience of experimental inquiry becomes the test of newly formed ideas and values. I reiterate this point because it is crucial to understanding the forms of knowledge that are marginalized or represented as the residue of oppressive traditions. Knowledge refined over generations of living in a bioregion, and encoded in ceremonies, in the wisdom of elders, in the vernacular architecture and agricultural practices, and in the taken-for-granted linguistic and behavior patterns of everyday life do not meet the strict criteria of experimental inquiry—and thus are to be regarded as traditions or habits that limit the method of intelligence. In effect, by not challenging the limited approach Dewey takes to what constitutes knowledge, the effort to represent Dewey as an environmental philosophy marginalizes the various forms of knowledge that characterize many indigenous cultures that have learned to live within the sustainable limits of their bioregions.

The double bind that characterizes the efforts to represent Dewey's "pragmatic naturalism" as a guiding environmental philosophy, which would require ecologically-centered cultures such as the Hopi, Cree, and Zapotec to reject their traditional forms of knowledge in favor of Dewey's approach to growing in the ability to reconstruct experience, can be traced to his misunderstanding of tradition. Eldridge and Rorty reproduce Dewey's mistake of equating traditions with habits, which Dewey describes as "behavior (that) is confined by channels established by prior behavior...and monotonous regularity."²¹ Dewey further explains the limitations of habits (traditions) in the following way: "habits reduce themselves to routine ways of acting, or degenerate into ways of action to which we are enslaved just in the degree in which intelligence is disconnected from them." "Routine habits," he continues, "are unthinking habits."²³ Habits, as dispositions, must be continually reconstructed through the use of intelligence (experimental inquiry). It is important to note that he placed the emphasis on the formation of new ideas. As he wrote in The Quest for Certainty, "knowledge which is merely a reduplication of ideas of what exists already in the world may afford us the satisfaction of a photograph, but that is all."²⁴

Rorty reproduces Dewey's misunderstanding of the nature of tradition in his arguments for a liberal democracy where ironist individuals engage in the process of "self-creation."²⁵ Traditions, or

what Rorty refers to as “common sense,” are viewed as limitations on this process. Repeating another mistake of Dewey’s, which is to place habits and intelligence in opposing categories, Rorty states that the “opposite of irony is common sense,” which is his code word for tradition. Common sense, as he puts it, “is the catchword for those who unselfconsciously describe everything important in terms of the final vocabulary to which they and those around them are habituated”²⁶

Michael Eldridge summarizes Dewey’s view of tradition by stating that Dewey held that “our inherited ways of knowing and doing are inadequate to the task of relating existence and value,” and that Dewey’s primary aim was to “make out present beliefs, attitudes, and organization more intelligent than they would otherwise be.” (italic added)²⁷ The chapters written by Kelly Parker, Larry Hickman, and the other contributors to Environmental Pragmatism omit any reference to the nature of tradition and its role in carrying forward intergenerational knowledge and values that have a smaller ecological impact.

The word “tradition” encompasses all aspects of cultural life that are re-enacted over four generations. It took Edward Shils 330 pages to describe the characteristics of traditions that are largely a taken-for-granted part of daily experience: the many patterns and technologies that we rely upon, how traditions change from within and from outside forces, how some traditions should not have been constituted in the first place while others change too slowly to fit current sensibilities, how other traditions disappear and are only recognized in hindsight as important to civil society—and the impossibility of recovering traditions once they are gone, the anti-tradition traditions that have as one of their chief goals the overturning of all traditions..²⁸ The point of bringing Shils’ more complex and accurate account of our dependency on traditions, as well as the dependency of Dewey, Rorty, Eldridge, and the contributors to Environmental Pragmatism on taken-for-granted traditions, is that it helps clarify how Dewey and his followers overstate the efficacy of experimental inquiry. It also foregrounds the importance of intergenerational knowledge that, in many instances, represents alternatives to the consumer and technology dependent lifestyle now being globalized. To cite just one example of the importance of intergenerational knowledge that has special significance in terms of ecologically sustainable communities, the vast knowledge that indigenous cultures have of the plants and animals within their bioregion, particularly their knowledge of the medicinal qualities of plants, can only be explained as being accumulated and refined over generations of experience. It is also the outcome of careful observation of how the plants are part of larger ecosystems, and the consequences of ingesting them—which involves intergenerational knowledge (traditions) that do not fit Dewey’s

more truncated and progressively oriented experimental method of inquiry. Jared Diamond's personal account of expressing his doubts about the safety of the mushrooms that his Fore companions (a tribe in New Guinea) gathered in order to stave off hunger, which led to him being lectured about the 25 varieties of edible mushrooms and where in the forest they could be found, is a good example of the importance of what the Fore considered common sense knowledge.²⁹ Indeed, the test of Dewey's epistemology, as well as the coping skills of Rorty's ideal ironist individual, would be to test them in a similar situation, but without the benefit of local indigenous knowledge

As the word tradition often evokes a knee-jerk response not dissimilar to how Dewey and Rorty refer to it, it is important to cite a few examples of traditions shared within the dominant culture. For Dewey, Rorty, and the contributors to Environmental Pragmatism, as well as other people in the literate tradition of encoding knowledge, writing from left to right on the page, spellings, use of paragraphs and capital letters are examples of traditions. Other traditions that are more easily revised include recipes for the preparation of food, legal procedures, ways of preserving privacy in communicating messages to others, rules that regulate games, and the writing of poetry—to cite just a few of the traditions we re-enact, modify, and carry forward through a process of being socialized by the previous generation. Even cutting edge technologies represent the extension of traditions built up over generations, and the rate of this technological change indicates how traditions of knowledge are sources of empowerment—just as Dewey was empowered by traditional patterns of forming words into sentences on a page, rather than having to rely upon his method of experimental intelligence in order to avoid the constraints of habits—or common sense as Rorty would put it.

Beyond Experimentalism: Why Eco-Justice Should be at the Center of an Environmental Philosophy:

The double bind inherent in the globalization of the industrial mode of production and consumption is now widely documented by studies of rapid changes occurring in the Earth's ecosystems. The melting of polar icecaps, global warming that is altering habitats and weather systems, collapsing marine ecosystems, loss of topsoil (now estimated on a worldwide basis at 37 percent), and chemicals that are changing the reproductive rates of species, are on a scale that requires asking a different set of questions than what concerned Dewey and his present interpreters. The assumption that the chief task is to use Dewey's method of intelligence in participatory settings to reconstruct the problematic sources of experience will not in itself reverse the downward trendlines in the viability of natural systems. Indeed, the root metaphors that Dewey relied upon to justify his

arguments that experimentally grounded ideas always lead to a progressive form of change also underlies the Industrial Revolution that, in its digital phase of development, is now being globalized—and which will only accelerate the deepening crisis. Dewey's method of experimental inquiry, with its emphasis on the widest possible participation of the people affected by the problem (such as health problems resulting from chemically contaminated workplaces and neighborhoods), has a limited usefulness. It can also be used in eco-management approaches to identifying the causal relationships between human activities and changes in natural systems—such as the decline in salmon populations and the contamination of ground water.

But Dewey's epistemology is totally inadequate for affecting the deep cultural changes that must be made if we are to reverse the unsustainable human impact on natural systems. In fact, the globalization of his epistemology, which appears as a natural extension of the arguments of Dewey and followers such as Rorty, will exacerbate the ecological crisis by undermining cultural diversity—and thus the forms of knowledge and values that are the basis of less consumer dependent lifestyles. The basis for this criticism can be seen more clearly if we consider whether Dewey's view of the educational process can be used to address what I shall call eco-justice issues. First, however, it would be helpful to reiterate several key features of his thinking about education. His primary concern was to educate students and adults in the method of intelligence, and thus to increase their efficiency (growth) in the ongoing process of reconstructing experience. This required replacing cultural diversity with his synthesis of democratic decision making and experimental inquiry. To reiterate another point ignored by Dewey and his followers, Dewey's view of democracy requires a process of colonization, with his interpretation of intelligence and participatory decision-making becoming the new standard of progressive citizenship.

One of the primary challenges today is to reduce our dependency upon consumerism and technologies that have an environmentally disruptive impact. This can also be understood as the need to reduce the commodification of knowledge, skills, and relations—which represents the relentless spread of industrial culture. The industrial approach to education, agriculture, entertainment, healthcare, as well as every other aspect of daily life—from personal grooming to computer mediated thought and communication—is part of a cycle that turns nature into a economic resource to be extracted, processed, packaged and sold in shopping malls, and returned after a limited use to the environment as toxic waste and landfill.

Globalizing the consumer lifestyle, which is represented as enhancing the individual's material standard of living, is actually based on experimental modes of inquiry learned in universities and public schools, and which is the basis of the new technologies—including the technologies used to manipulate consciousness so that young people turn against their cultural traditions in order to embrace the new consumer fads. The rapid merging of scientific research and corporate values is only the latest manifestation that the method of experimental inquiry that Dewey placed so much faith in can be used in destructive ways. Making eco-justice the primary focus of the educational process requires an entirely different mind-set than what we now find being promoted in our universities and public schools. The need to take eco-justice issues seriously is based on both moral concerns as well as ecological imperatives. That is, if we do not undertake radical educational reforms that replace the current emphasis on promoting forms of education that expand the economy with regenerating the capacity of cultural groups to live in more self-sufficient and interdependent ways we will continue to experience the rapidly diminishing capacity of ecosystems to support life as we know it.

The four aspects of eco-justice most relevant to considering the nature of the educational reforms that must be undertaken include the following: (1) the need to eliminate eco-racism that occurs at the level of neighborhoods and communities, as well as across national boundaries; (2) the need to reduce the disparity of wealth between the North and South, and which results, in part, from resource extraction and the policies of the World Bank and other international agencies that are designed to integrate non-Western cultures into the world economy; (3) the need to strengthen the attenuated traditions within communities and cultural groups that enable them to live less consumer dependent lives; (4) the need to pursue lifestyles that ensures that future generations will inhabit viable environments that allow them to live morally coherent and symbolically rich lives.

Dewey recommended educational reforms that reflected the challenges of his era—as he understood them. His followers are recommending essentially the same educational reforms, supplemented by the small group who are addressing the ecological crisis by making the case that Dewey is not an anthropocentric thinker. However, if we take seriously the argument that consumerism and the relentless search to exploit new markets for the new technologies are major contributors to the ecological crisis, the nature of educational reform becomes radically different from how Dewey understood it. Reducing dependence on consumerism will lead to a reduction in the toxic waste and thus to a reduction in levels of illness among marginalized ethnic groups who have had chemical plants and waste dumps placed in or close to their neighborhoods. It will also lead to a reduction in the

extraction of resources from Third World cultures, and in the pressure to integrate them into the global economic system. And it will improve the prospects of future generations.

The alternative to the present cycle of creating greater dependence upon consumerism, as Ivan Illich and others have been telling us, is to foster the skills, knowledge, and relationships that enable individuals, families, and communities to be more self-reliant. But this involves nurturing the forms of knowledge that our public schools and universities have relegated to low status by omitting them from the curriculum. It also involves recognizing that Dewey's experimental form of intelligence is only one of among many—and not necessarily the most important one. Knowing how to grow vegetables and prepare a meal—along with the ceremonial practices that transform the meal from an ordinary individually centered experience into one that creates a sense of connectedness to a larger whole, possessing the skills to make or repair something (e.g., clothes, furniture, dwelling), developing personal talents in the expressive arts and sports, knowing the medicinal qualities of plants and the spiritual disciplines that have proven to be an effective part of healing, and so forth, have a smaller ecological impact than the industrial approaches glamorized in the media and in our educational institutions. The key point is that knowledge of meaningful activities and the development of skills that contribute to more self-sufficient lifestyles are examples of traditions that are passed on through face-to-face relationships. They are kept alive and modified as part of the intergenerational experience of the family and community. Recipes are handed down as part of an intergenerational stock of knowledge; so is knowledge of how to maintain a garden, play a game, write a poem, use certain plants to ease an illness, build a dwelling (especially a vernacular dwelling that uses local materials, skills, and meets the needs of the community), mentoring a child, and carrying on a conversation that may be raised to the level of dialogue. These traditions, as pointed out earlier, are not static. If we observe them being passed along we will notice how they are adapted in ways that fit the individual's skills and way of interpreting them. These traditions represent encoded knowledge, in some cases wisdom, that has been tested and refined over generations of experience—often in ways that reflect the influence of the local landscape and life forms. Some of these traditions may become rigid and out of touch with changes in the environment and community—but this is because people fail to adapt them to the changing circumstances or find special advantage in perpetuating traditions that were wrongly constituted in the first place. As Shils points out, traditions never perpetuate themselves; rather they are perpetuated by living human beings—which opens the door to all kinds of abuse and misinterpretations.

The challenge is to identify the traditions that contribute to morally coherent communities and cultural identities—and that have a smaller ecological impact. Many of the non-commodified forms of knowledge, skills, and relationships within families and communities, and which vary among cultures, do not fit Dewey's narrow criteria for what constitutes the exercise of intelligence. Where intergenerational knowledge involves refining and updating what has been proven in the past, Dewey wants each generation to view ideas as “anticipatory plans and designs which take effect in concrete reconstructions of antecedent conditions of existence.”³⁰ This is a reasonable expectation for traditions that are no longer useful or have served as part of a network of oppression. But Dewey's emphasis on reconstructing traditions does not take account of the multiple ways in which the non-commodified aspects of daily life are passed along and renewed. The problem with Dewey's narrow definition of what constitutes knowledge can be seen by comparing such statements as “knowledge which is merely a reduplication in ideas of what exists already in the world may afford us the satisfaction of a photography, but that is all”³¹ with the process of mentoring. Mentoring is usually an intergenerational relationship with many dimensions—passing on knowledge refined over generations of experience, the accompanying narratives that contribute to the development of identities and character, demonstrating the difference between a high level of skill and more formulaic work. It also involves going beyond mastering what the mentor has to teach to expressing a higher level of talent that has elements of originality. It is not, in short, a relationship that fits the negotiating process that accompanies Dewey's experimental approach to reconstructing experience.

Dewey's method of intelligence, as pointed out earlier, would be highly useful in educational settings where the sources of environmental pollution need to be identified and corrected through democratic procedures. While incorporating Dewey's approach to problem solving in the area of eco-racism and in examining such issues as the connections between corporate values and the destruction of local economies, an educational process that addresses other eco-justice issues would need to be based on an understanding of the different ways knowledge is encoded and renewed in the life of the community—and, most importantly, the differences in cultural ways of knowing. Perhaps the most critically important eco-justice issue that can be addressed through a radically reformed approach to the curriculum is the need to reduce the current trend toward greater dependence upon consumerism to meet daily needs. This has several curricular dimensions. The first would be to have students document the many ways they are dependent upon consumer products in the course of a day, and to also document the multiple ways consumerism is promoted through the media and through such other

channels of communication as the layout of shopping malls and design of buildings. Students would also be encouraged to document the monetized relationships they have during a day. This approach sounds very Deweyian; but the other part of helping students understand the cultural alternatives to commodified activities and relationships requires an understanding and appreciation of traditions that goes against the grain of Dewey's basic epistemological biases. The second aspect of curriculum reform would be to have students survey within their own neighborhoods and communities the range of face-to-face, intergenerationally based activities, relationships, and forms of knowledge that have not been commodified. The focus of this survey would include the dominant culture, as well the minority cultural groups that many students are still rooted in. There are several purposes for learning about the non-commodified aspects of the diverse groups found in most neighborhoods that still retain traditions distinctive of their mother culture, which range from Latino, Indigenous, and Japanese-American to Mennonites, Mormons, and other faith based groups. The first is to understand, and, in many instances, to valorize their traditions of intergenerational responsibility that contribute to morally coherent communities, and that represent examples of individual, family, and communal self-sufficiency. The sense of being marginal in relation to the dominant materially oriented culture undermines the intergenerational connectedness within many of these groups; thus the need to communicate a recognition that their approaches to community that contribute to reducing the rate of environmental degradation is vitally important. The second reason for learning about the non-commodified forms of knowledge, relationships, and activities carried on within these diverse groups is that it will assist students in recognizing alternative possibilities for living less consumer dependent lives. Learning who the mentors are in different cultural groups and the nature of activities that develop personal talents while creating a sense of community are essential to participating in the intergenerational life of a community.

The emphasis on involving students in the non-commodified activities has another implication that cannot be taken into account by the followers of Dewey's narrowly conceived epistemology. As pointed out earlier, Dewey did not recognize the profound differences in cultural ways of knowing and mythopoetic narratives. He divided the world's cultures into two categories—those that adhered to fixed ideas and values, and relied upon a spectator approach to knowledge; and those that relied upon an experimental mode of inquiry. For a philosopher who placed so much emphasis on the experiential ground of inquiry, it is important to note that he did not take seriously the forms of community, moral reciprocity, and wisdom of human/Nature relationships among the indigenous cultures that shared the

bioregion he grew up in. Nor did he concern himself with whether his category of cultures mired in a spectator approach to knowledge really made sense in terms of the Japanese, Chinese, and Islamic cultures he visited.

Contrary to Dewey's position, which has not been corrected by Rorty or Eldridg, nurturing existing differences in cultural ways of knowing becomes vitally important to reversing the downward trendline in the viability of natural systems. One of the effects of globalization is to undermine cultures that developed complex symbolic systems for understanding relationships within the human community, and between the human and natural communities. However, many of these cultures are now actively resisting being drawn into the western system of technological dependency and corporate values. On the local level that is part of the student's daily experience, there are many cultural groups that have not entirely assimilated into the mainstream individually-centered, consumer dependent lifestyle. These cultural groups, many of which have been economically and politically marginalized, have a sense of identity as a community because they carry on the intergenerational traditions of knowledge and moral values. These traditions may be so attenuated that they now exist only in the form of traditional foods, ceremonies, and uses of herbal medicines. But many of these cultures are struggling to keep alive their language and thus their basic way of understanding relationships—and the attributes of the participants in these relationships. Many of the languages of indigenous cultures encode ways of understanding relationships with the natural world that predated by thousands of years Aldo Leopold's land ethic.³²

An eco-justice curriculum should introduce students to the range of cultural groups that are now mixed together in urban and rural settings. In addition to learning about differences in intergenerational forms of knowledge, and how these forms of knowledge influence patterns of moral reciprocity within their communities, students also need to consider the traditions that represent alternatives to the hyper-consumerism that permeate every facet of the dominant culture. Valorizing the non-commodified traditions of these diverse cultural groups may help strengthen minority students' identification with the traditions of their parents, as well as provide students from the dominant culture with an understanding of the alternatives to environmentally destructive activities and values. The purpose would not be to borrow from these cultures, which too often turns into the economic appropriation of their traditions. Rather, it is to enable students to gain a different perspective on what remains of the non-commodified traditions within the dominant culture.

The failure of Dewey's followers to recognize how taken-for-granted root metaphors that had their origins hundreds (even thousands of years ago in the case of anthropocentrism and patriarchy) frame

current thinking can be seen in how a Deweyian approach to curriculum is understood. In addition to Dewey's emphasis on the curriculum emerging from the ongoing experiences of the community, his insistence that inquiry begins with a problematic situation (which he understood in terms of explicit awareness) further limits what should be the focus of the curriculum. The root metaphors that unconsciously influence thought and behavior are not likely to be examined in an educational process based on Dewey's epistemology and taken-for-granted assumptions. A good example of how a Deweyian view of learning represents a surface approach to problem solving can be seen in the process of eco-management where the scientific method and, in some instance, participatory decision making are the *modus operandi*. This approach seldom involves an examination of the root metaphors of anthropocentrism, mechanism, progress, and economism that are the primary sources of the problem. When these root metaphors are not changed, the problem simply reoccurs at a later date, and on a larger scale

An eco-justice oriented curriculum needs to encourage students to examine how the taken-for-granted root metaphors influence the areas of cultural experience that create the double bind where our approaches to progress undermine the viability of natural systems. In addition, students need to examine how these root metaphors influence our understanding and use of science and technology. Questions that will contribute to democratizing the uses of science and technology include the following: How does modern science and technology differ from the ways of explaining, predicting and controlling natural phenomena in oral cultures? How do different technologies influence relationships and the ability to live more self-sufficient lives? How do the prevailing cultural assumptions influence the kinds of technology that are developed? Who benefits most from different forms of technology? What traditions are displaced by different technologies, and do the displaced traditions result in new forms of dependency? What is the form of individualism required by different forms of technology? Which technologies contribute to globalizing an ecologically unsustainable lifestyle?

A similar set of questions can be asked about the culturally specific root metaphors that underlie the practice of western science and its legitimating ideology: What are the assumptions that underlie the scientific method? What forms of knowledge and aspects of human experience is it unable to address? Does the use of the scientific method to establish moral norms and to delegitimize the mythopoetic narratives that are the basis of moral values exceed the explanatory of the scientific method of inquiry? What was the role of science in the development of the Industrial Revolution, and is it now at the center of current efforts to bring the most basic biological processes under the control of an industrial mode of

production and consumption? What are the appropriate limits of scientific inquiry, and how can it be determined when scientists cross the line that separates competent judgment and being an ideologue and futurist thinker? What can be legitimately explained by the theory of evolution, and when does it become an ideology that gives the appearance of scientific legitimacy to processes of colonization and the right of elite groups to further advantage themselves?

These are difficult but necessary questions that also need to be part of an eco-justice curriculum. Addressing these questions will help students gain a better understanding of how the high-status knowledge that leads to greater dependency upon the products and processes of the industrial system now moving into its digital phase undermines the face-to-face, intergenerational knowledge that represents the alternative pathway that we must rediscover if we are to reduce the impact of humans on the environment. It will also help students recognize that science and technology cannot address issues of personal meaning, moral relationships, and renewing patterns of self-sufficiency within communities and cultural groups. Students may also gain insight into the role that mythopoetic narratives play in helping people understand their place in the cycles of life, and in recognizing the limits of a life based on hubris and misrepresentations of fundamental life sustaining relationships. Dewey and his followers might claim that his approach to education would also lead to deep inquiry into these questions, but unfortunately his approach to problem solving never reaches the level of examining the guiding cultural assumptions; and his emphasis on democratizing the process of inquiry took-for-granted that the scientific mode of inquiry itself did not need to be problematized. It should also be kept in mind that Dewey argued against the mythopoetic narratives that could provide an alternative perspective on the limits of science, technology, and the hubris of experts. In effect, he aligned himself with the progressive cultural forces that are, in the name of higher values of democracy, experimental inquiry, and progress, accelerating the rate of environmental degradation. To argue that he is an environmental philosophy is a misguided effort that reflects the failure to question the assumptions that Dewey took for granted.

References

Apffel-Marglin, Frederique. 1997. "Counter-Developments in the Andes" The Ecologist. Vol. 27, No. 6, pp. 221-224.

_____, with PRATEC (editors). 1998. The Spirit of Regeneration: Andean Culture Against Western Notions of Development. London: Zed.

- Basso, Keith. 1996. Wisdom Sits in Places; Landscape and Language Among the Western Apache. Albuquerque: University of New Mexico Press.
- Bowers, C. A. 1993. Critical Essays on Education, Modernity, and the Recovery of the Ecological Imperative. New York: Teachers College Press.
- Dewey, John. 1916. Democracy and Education. New York: Macmillan.
- _____. 1929. Experience and Nature. New York: W. W. Norton.
- _____. 1957 edition. Reconstruction in Philosophy. Boston: Beacon Press.
- _____. 1958 edition. Art As Experience. New York: G. P. Putnam's Sons.
- _____. 1960 edition. The Quest for Certainty. New York: G. P. Putnam's Sons.
- Dewey, John, and Arthur Bentley, 1949. Knowing and the Known. Boston: Beacon Press.
- Diamond, Jared. 1999. Guns, Germs, and Steel: The Fates of Human Societies. New York: W. W. Norton.
- Eldridge, Michael. 1998. Transforming Experience: John Dewey's Cultural Instrumentalism. Nashville: Vanderbilt University Press.
- Lansing, Stephen, J. Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali. Princeton: University of Princeton Press.
- Lawlor, Robert. 1991. Voices of the First Day: Awakening in the Aboriginal Dreamtime. Rochester, VT.: Inner Tradition.
- Light, Andrew, and Eric Katz. 1996. Environmental Pragmatism. London: Routledge.
- Nelson, Richard. 1983. Make Prayers to the Raven: A Koyukan View of the Northern Forest. Chicago: University of Chicago Press.
- Rorty, Richard. 1989. Contingency, Irony, and Solidarity. Cambridge: University of Cambridge Press.
- Sachs, Wolfgang. 1992. The Development Dictionary: A Guide to Knowledge as Power. London: Zed.
- Shils, Edward. 1981. Tradition. Chicago: University of Chicago Press.
- Sapir, Edward. 1970 edition. Culture, Language, and Personality. Berkeley: University of California Press.
- Walens, Stanley. 1881. Feasting with Cannibals: An Essay on Kwakiutal Cosmology. Princeton, NJ.: University of Princeton Press.
- Wilson, E. O. 1998. Consilience: The Unity of Knowledge. New York: Alfred A. Knopf.

Chapter 7 Why a Critical Pedagogy of Place is an Oxymoron

There are many assumptions and values that science and environmental educators share with the proponents of critical pedagogy and place-based educators. The critical pedagogy theorist's emphasis on social justice issues and the place-based educator's stress on student's becoming active participants in the interplay of their local communities and bioregions can easily be interpreted by science/environmental educators as natural allies in creating a more sustainable future. That all four groups have learned to take-for-granted many of the same cultural assumptions as well as the silences promoted in their university education is yet another reason that the agenda of a critical pedagogy of place appears so appropriate for supplementing the pedagogy and curriculum in environmental and science education classes. Among the key assumptions they share in common include thinking of change as an inherently progressive force (what the critical pedagogy theorists refer to as "transformations" and "transformative learning"), a deep seated ethnocentrism that is now masked by abstract references to valuing cultural differences, a view of language as a conduit—which marginalizes an awareness that words have a history and that their meaning needs to be continually updated through what the anthropologist, Clifford Geertz, referred to as "thick description" (1973), and that critical thinking always leads to overcoming oppression and environmentally destructive practices.

The other key assumptions reinforced in a university education take the form of prejudices that can be traced back to the ideas of Plato that were, in turn, reinforced by Enlightenment thinkers and most contemporary Western philosophers. These prejudices relate to the way "traditions" are now represented in most university classes—and especially in science-oriented classes. Another prejudice is that indigenous cultures are essentially backward and thus must be modernized by adopting the Western model of development—including modern science. One of the major silences in the university education of critical pedagogy theorists, place-based educators, and science-oriented educators is about the nature, importance, and diversity of the world's cultural commons for living a less consumer, more community-oriented lifestyle. To make the point more directly, science and environmental educators share many of the same assumptions that are taken-for-granted by the proponents of a critical pedagogy of place and thus do not recognize that combining "critical pedagogy" with "place" is an oxymoron. According to the dictionary, an oxymoron is "a rhetorical figure in which incongruous or contradictory terms are combined". When both groups—the

proponents of critical pedagogy of place and the science/environmental educators—find in each other’s approach to educational reform the language that appears to represent common interests, they may think that it is unnecessary to question whether the conceptual baggage (including the prejudices and silences) of both groups leads to basic contradictions—or what I would prefer to call conceptual double binds.

Part of the conceptual baggage that critical pedagogy theorists never mention is that Paulo Freire was a deeply Social Darwinian thinker, which can be seen if the reader goes to his description of the three stages of human (cultural) development in Education for Critical consciousness (1974a English language edition). There he describes the indigenous cultures living in the interior of Brazil as “men of semi-intransitivity of consciousness who cannot apprehend problems situated outside of their sphere of biological necessity.” His categories for other cultures that have evolved to a higher stage of development include “transitivity of consciousness”, “naïve transitivity”, and finally—“critically transitivity of consciousness” which he identifies as the most evolved consciousness of critical pedagogy theorists (pp. 17-19). John Dewey, the other less quoted source of thinking that environmental/science educators are more likely to have studied in their teacher education courses, is also a Social Darwinian thinker. His stages of cultural evolution can be seen in his many references to “savages”, people locked in a “spectator” approach to knowledge, and the more evolved thinkers who rely upon the experimental mode of inquiry for continually reconstructing experience. Both Freire and Dewey assumed that change is inherently progressive in nature, and both ignored the environmental damage of their times. Dewey, for example, refers to traditions (habits) “as routine ways of acting, or degenerate in ways of action to which we are enslaved...” (1916, p. 5). Freire’s most famous injunction for overcoming oppression can be found in Pedagogy of the Oppressed where he urges each generation to rename the world of the previous generation (1974b, p. 76). And in The Politics of Education, he states that “history makes us while we make it. Again, my suggestion is that we attempt to emerge from this alienating routine that repeats itself” (1985, p.199). Their misunderstanding of the nature and complexity of traditions is reproduced in the thinking of the advocates of a critical pedagogy of place, and is one of the reasons the latter group are unable to recognize the ecological and community strengthening characteristics of many of the world’s cultural commons.

A strong case can be made that even though the current generation of critical pedagogy theorists, such as Henry Giroux and Peter McLaren, now suggest that the multicultural nature of the world must be taken into account, and that we must address the economic basis of the ecological crisis, we can still

see in their writings the main themes of both Freire and Dewey—which is the need to transform the world by relying upon an abstract Western epistemology that carries forward a number of misconceptions and prejudices that can be traced back to Plato’s Republic. Their emphasis on the efficacy of abstract theory in leading to a better world reproduces Plato’s assumption that rational thought, which only an elite can effectively engage in, is a more reliable source of knowledge than narratives, embodied experiences, and the achievements of other cultures (Bowers, 2007a). For McLaren, the epistemological framework that should serve as a universal guide for addressing the ecological crises is the Marxist analysis that he is now attempting to “green” (2005). The silences and prejudices found in the theories of Dewey and Freire—particularly their indifference to the importance of the cultural commons as sources of resistance to the globalization of market forces as well as their prejudice toward other cultural ways of knowing-- also continue to be reproduced in the thinking of Giroux and McLaren—and to a lesser extent in the thinking of David Gruenewald. The problem for science/environmental educators is that these are the same silences and prejudices that were part of their own university education. These shared silences and prejudices, along with the shared cultural assumptions, are the most likely reasons that science/environmental educators do not recognize that a critical pedagogy of place is an oxymoron.

If one reads the writings of Giroux and, more importantly, McLaren, one finds recommendations for educational reforms that are based on a clear understanding of how capitalism is contributing to the development of a world monoculture, and to destroying the sustaining capacity of natural systems. McLaren gets this part correct. Whether the culturally diverse educators of the world will adopt his “green revolutionary critical pedagogy” that is to lead to an ecologically sustainable socialist future is more problematic. The important point is that neither Giroux’s vision of the teacher as a “transformative intellectual”, McLaren’s revolutionary Marxist-oriented critical pedagogy, nor Joel Kovel’s eco-socialist pedagogy (2002) address the specific curriculum reforms that should be undertaken. Their writings contain sweeping generalizations about social justice, the need for overturning oppressive practices—including capitalism. But they fail to explain how to introduce these reforms in the world’s diversity of cultures that range from the Euro-centric to the Muslim, Hindu, and the thousands of indigenous culture that make up the majority of the world’s population. As many of these non-Western cultures are well represented in urban areas across America, Canada, Great Britain, as well as other Western countries, there is a need for these critical pedagogy and eco-socialist theorists to explain how these cultural groups are to be educated to abandon their non-Western forms

of consciousness, and to adopt the supposedly emancipated consciousness of Freire, Giroux, and McLaren.

If we were to do an empirical study of whom science/environmental educators rely upon most for their understanding of how to adapt a critical pedagogy of place to their approach to teaching and curriculum, I suspect that the person they would cite as the most influential would be David Gruenewald. The essay they are likely to cite as providing the best understanding of a critical pedagogy of place would be a “The Best of Both Worlds: A Critical Pedagogy of Place” (2003). If the reader lacks a knowledge of the historical roots of double bind thinking encoded in the languaging processes that are largely taken-for-granted, including how the silences and prejudices that have characterized Western philosophy since the time of Plato are still being perpetuated in universities, they are likely to think that Gruenewald has achieved a synthesis that avoids the problem of critical pedagogy of place being an oxymoron.

A key word that has been missing in the writings of Freire, and his many followers around the world (including McLaren’s reductionist and thus non-culturally grounded and non-embodied use of the word) is “conservatism”. Gruenewald attempts to soften the emphasis of critical pedagogy on continual transformation, which is the goal of Freire’s critical pedagogy, by stating that the “question of what needs to be conserved takes on a special significance to a pedagogy of place” (p. 10). His acknowledgement that not everything needs to be transformed and decolonized was a result of an hour and a half telephone conversation with me, which he acknowledges the “Notes” section of the paper. Had he not had this conversation, his effort to explain the need for place-based educators to balance “decolonization” with helping local communities to learn how to “reinhabit” their place would have left the reader with the idea that both critical pedagogy and place-based education have essentially the same reform agenda. His reference to the need to be aware of what needs to be conserved puts him outside the mainstream of critical pedagogy thinking. Unfortunately, Gruenewald does not acknowledge that conserving involves, among other things, an awareness of the ecological importance of the many forms of intergenerational knowledge, skills, and patterns of interdependence and support that can also be understood as traditions. As pointed out above, a constant theme in writings of Freire, Giroux, McLaren, and Peter Roberts is that traditions need to be the main focus of the universal project of decolonization and emancipation. Gruenewald’s reference to conserving thus represents a radical departure from the emancipatory agenda of critical pedagogy theorists, but he fails to recognize

that many of his readers will impose their stereotypical and reductionist understanding on his use of the word.

While Gruenewald makes a verbal genuflection in the direction of making awareness of what needs to be conserved part of his understanding of a pedagogy of place, he never goes on to identify what needs to be conserved. That is, like the other critical pedagogy theorists, there is no specificity to the recommendation—and this silence has to do with their collective lack of a deep understanding of cultures. To put it another way, Gruenewald shares with the other critical pedagogy theorists a lack of awareness of how a “thick description” of the local intergenerational knowledge should be a core creature of place-based education. The result is that the reference to knowing what needs to be conserved does not eliminate the problem of a reform agenda that is based on oxymoron thinking.

A careful reading of Gruenewald’s essay reveals that the agenda of critical pedagogy, which he refers to as “decolonization”, is his primary concern—and that “reinhabitation” turns out to be a context-free metaphor that has “God-word” standing that is beyond questioning. Unfortunately, he adopts from others an explanation of “reinhabitation” that justifies the transformative mission of critical pedagogy. He quotes the definition given by Berg and Dasmann, that reinhabitation means “learning to live-in-place in an area that has been disrupted and injured through past exploitation”. He also quotes David Orr’s explanation that “the study of place...has significance in reeducating people in the art of living well where they are” (Gruenewald, p. 9). What is important to note is that both quotations fail to acknowledge that there are aspects of the cultural commons that do not require “re-education” and learning to live in non-environmentally destructive ways. Gruenewald’s reliance on the word “reinhabitation” further strengthens the likelihood that science/environmental educators continue to ignore the importance of the cultural commons that have a smaller ecological impact. Unfortunately, educators are ill-prepared to re-educate the people who possess the economic and political advantages that have allowed them to exploit the environment—though recent experience has demonstrated that students can participate with other environmentally activists in forcing corporations and other environmental malefactors to modify their behavior.

Learning to participate in these collective environmental restoration efforts should be a key part of place-based education. However, what is not recognized in Gruenewald’s ideologically driven effort to make place-based education dependent upon the critical pedagogy of decolonization (a word that has its roots in a Marxist analysis) is that most environmental activists rely upon a more general understanding of critical reflection that can be traced back to the ideas of Socrates. Indeed, critical

reflection, over the centuries, as not always been used to achieve social justice. It has been relied upon to solve a wide range of problems, such as how to identify and punish people who were drifting from the orthodoxies of the Catholic Church, how to introduce social reforms that would contribute to greater social justice in society, how to market products that the public was unaware of needing, and how to ensure that the adoption of a new technology would not undermine the intergenerational knowledge essential to a morally coherent and mutually supportive culture. A specific example of the exercise of critical reflection that was not informed by the change-oriented interpretation that the critical pedagogy writers take-for-granted (except for the Bowers' influenced qualification that Gruenewald makes) is how a First Nation culture in Canada relied upon critical reflection in sorting out the cultural issues involved in adopting computers in their approaches to education. For them, critical reflection involved examining what needed to be changed and what needed to be conserved—and it was a process that combined critical reflection and democratic decision making that took two years to work through.

Gruenewald's efforts to incorporate a concern with balancing a decolonizing educational agenda with an awareness that conserving must also be taken into account in placed-based education brings into focus another aspect of the conceptual baggage that is part of critical pedagogy thinking that few educators think critically about. Gruenewald, like Freire, McLaren, and Moacir Gadotti (Director of the Paulo Freire Institute in Brazil) reproduce a tradition that can be traced back to one of Plato's contributions that Western philosophers have been happy to sustain: namely, the idea that there is such a thing as "pure thinking". That is, the idea that thinking, when rationally based, is free of the influence of the cultural epistemology encoded in the metaphorical language of the cultural group—and upon which the "thinker" relies and generally takes for granted.

The current manifestation of this phenomenon was best described by Alvin Gouldner when he wrote that "the culture of critical discourse is characterized by speech that is *relatively* more *situation-free*, more context or field 'independent'. This speech culture thus values expressively legislated meanings and devalues tacit, context-limited meanings. It's ideal is 'one word, one meaning' for everyone and forever" (1979, p. 28). This proclivity of relying upon abstractions that have been melded together into a theory can be seen not only in Gruenewald's reliance on the words "decolonization" and "reinhabitation" but also in Gadotti's claim that environmental educators should foster a "planetary consciousness" and that this form of consciousness can only be created as the environmental educator disrupts the process of cultural transmission by encouraging students to

discover this consciousness for themselves. This is to be achieved, according to Gadotti, by encouraging students to undertake “the grand journal of each individual into his interior universe and the universe that surrounds him” (2000, p. 9). While Freire would not go along with this subjective approach to emancipation from the processes of cultural transmission, Gadotti’s proposal is not fundamentally different from Freire’s argument that each generation can only achieve the fullest expression of their humanity as they rename the world of the previous generation-- a proposal that ignores the differences in cultural ways of knowing that often were and still are the basis of living within the limits and possibilities of their bioregion.

McLaren also reproduces the Platonic pattern of representing abstract thinking and theory as more legitimate than context-dependent forms of knowledge--which I will explain more fully in terms of Geertz’s idea of “thick description. For example, McLaren reduces the discussion of what needs to be conserved in America’s political and environmentally degraded circumstances into a word game where one abstract definition is played off against another abstraction—and in the process reproduces another part of the Platonic legacy that Western philosophers have perpetuated. Namely, the marginalization of other cultural ways of knowing, including the nature and ecological importance of their cultural commons. In his usual style of misrepresenting the ideas of people with whom he disagrees, McLaren (along with Donna Houston) writes that “we may have found some more common ground with Bowers if not for his insistence on boiling everything down to a linguistic struggle over whether the word transform or the word conservative is the more appropriate political term” (2005), p. 204). By ignoring the extended discussion in my earlier book, Mindful Conservatism (2001) that was based on a thick description of the biological, linguistic, cultural, psychological, and environmental processes that are unavoidably conserving, and that represent the conservative ideas of Edmund Burke, Michael Oakshott, and such environmental conservative writers as Wendell Berry, Vandana Shiva, and Masanobu Fukuoka, he represents both the words conserve and transform as having a universal meaning and thus free of cultural contexts. If one examines the key words in Gruenewald’s article, we find the same proclivity of assuming that words have a universal meaning.

Let me be more specific here. The context-free use of language that characterizes both how critical pedagogy and place-based education are supposedly complementary processes is key to understanding why, when fused together, a critical pedagogy of place is an oxymoron. The quotations that Gruenewald borrows from Berg, Dasmann, and Orr represent only a partial understanding of how people inhabit place. And their representation of how people need to be “reeducated in the art of living

well” represents an example of context-free thinking. If Berg, Dasmann, Orr, and, for that matter, Gruenewald, had engaged in a thick description of what all is constituted in inhabiting place they would have found that the nature of place-based education has a more complex agenda than that of decolonization and reinhabitation.

According to the anthropologist, Clifford Geertz, thick description is what enables one to know the difference between (to use his example) an involuntary wink of eye and a wink that is intended to send a message. That is, thick description involves examining the history of prior relationships, issues of gender and class, personal biography, and all the other background cultural patterns that may have influenced the nature of the message that was being sent. Another example is when feminists challenged the prejudices inherent in genderized language by doing a thick description of their history of achievements, patterns of discrimination, various forms of exploitation—and even the mythopoetic narratives that represented them as inferior to men. Thick description involves challenging the abstractions that carry forward past misconceptions, prejudices, silences, and stereotypes that are encoded in metaphors such as decolonization, critical inquiry, emancipation, individualism, tradition, woman, planetary citizen, American, Canadian, British, Muslim, and so forth.

Why a critical pedagogy of place is an oxymoron can be seen if a thick description of how different cultural groups inhabit place is undertaken. This would require a thick description of the cultural traditions and practices of the nearly 6000 linguistic groups still surviving (with many on the verge of extinction), as well as all the ethnic groups that mix and mingle with other groups in urban areas. Recognizing this huge task, which can be undertaken if the science/environmental educator focus on local people and local places, can lead to profoundly different pedagogical practices that go beyond the assumption that *all* people need to in learn how to re-inhabit on a sustainable basis the local bioregion. A thick description of the relationship between people and place may reveal the patterns of environmental abuse, as well as the ideology and techno-science developments that are major contributors to degrading the environment. But it may also lead to an awareness of many aspects of the local cultural commons that have been carried on for generations, and that represent alternatives to the consumer/industrial culture that is being globalized. The intergenerational knowledge that sustains many of the cultural commons that strengthen patterns of mutual support within communities and that have a smaller ecological impact represent patterns of habitation that do not need to be “decolonized”.

A different vocabulary than that of critical pedagogy theorists is required in describing (doing a thick description of) the many expressions of the local cultural commons that represent sites of

resistance to the hyper-consumer dependent lifestyle required by the industrial system of production and the incessant pursuit of profits. A thick description of the cultural commons carried forward by different ethnic groups, such as their approach to the preparation and sharing of food or their traditions of mutual support, would bring out the complexity existing within the community's mutual support systems as well as their historical continuities. Making explicit these traditions (some of which may perpetuate forms of discrimination) may also bring out the degree to which there is an awareness of how the cultural commons are being enclosed—that is, being incorporated into the market system of production and consumption. Women in Third World cultures who have had the traditional responsibility of identifying the seeds for the next year's planting are aware of how the introduction of the Green Revolution, with its reliance on chemicals and excessive use of water, are clearly aware of how their traditional knowledge was the basis of a subsistence existence that is now being threatened by the double bind of becoming increasingly dependent upon a money economy when their income is so severely limited.

Other aspects of the traditions of the cultural commons, what can be referred to as the intergenerational knowledge, skills, and systems of mutual support, include the narratives, approaches to the creative arts, ceremonies, civil liberties and systems of reintegration into community, craft knowledge, and so forth. The cultural commons of some groups include racist, gender, and age-related forms of discrimination and exploitation—which should be reformed by recovering the social justice traditions of the culture rather than driven by a Western ideology. We need to remember that the Woodrow Wilson ideal of making the world safe for democracy, which corporations and the World Trade Organization have reframed as making the world safe for achieving a global capitalist economy, is part of the West's messianic tradition that has its roots both in messianic Christianity, and in liberating ideologies that perpetuate the same disregard that Plato and other Western thinkers such as John Locke, Descartes, Adam Smith, John Dewey, Paulo Freire have shown toward the possibility that other cultures may have developed in ways that do not degrade the environments they depend upon.

Overcoming the oxymoron agenda of an critical pedagogy of place can be done if science/environmental educators understand their role as more complex than educating students to transform the local practices that are degrading the natural systems that future generations will depend upon. In suggesting how thick description should be an integral part of the educational process, it is important to identify another problem that is rooted in most approaches to educating science and environmental educators. That is, while there is a difference between the scientific method and the

scientists who think and communicate in the language of their cultural group, the professors who control the courses that science and environmental educators take as part of their professional studies too often do not themselves possess a deep knowledge of culture and thus do not require this of their students. The double bind here is that if science and environmental educators adopt a pedagogy based on a critical pedagogy of place, they will be dealing with cultural issues for which they have little or no understanding.

And when becoming an agent of cultural decolonization and re-inhabitation they may be moving down the slippery slope of scientism that we now find being promoted by highly acclaimed scientists. I am referring here to E. O. Wilson who claims in Consilience: The Unity of Knowledge (1998) that before the rise of Western science people were locked in a cognitive prison, that the brain is a machine, that religions are adaptive behaviors and should now be replaced by the theory of evolution, and that scientists are best prepared to determine which cultural practices and values should be allowed to exist. Francis Crick, in The Astonishing Hypothesis (1994) promises that scientists will soon be able to explain the nature of human consciousness—including why some people become outstanding musicians and mathematicians. And Lee Silver, in Remaking Eden (1997) claims that the next challenge facing scientists will be to create a class of “Gene Rich” humans who will over time occupy their own niche in the process of human evolution. The less known scientists responsible for intelligence tests and the eugenics movement also must be kept in mind when considering how scientists often reproduce the misconceptions of their culture. The example of the many scientists who introduced into the environment thousand of chemicals without knowing how they would interact on each other or on the reproductive systems of humans and other organisms—all in the name of progress—must also be kept in mind. The scientist’s lack of a deep knowledge of cultures, including how the languaging systems of different cultures carry forward the misconceptions (and in many instances the wisdom) of the past should be a major concern of science/environmental educators who take on the role of that a critical pedagogy of place assigns them.

Given this warning, I would like to suggest an approach that addresses what is missing in the critical pedagogy approach to place-based education. As suggested earlier, the cultural and environmental commons began with the first humans walking the savannas in what is now called Africa. While environmental scientists and various conservation groups are attempting to conserve and restore what remains of the environmental commons, there are cultural commons that also exist in every community—but again in highly attenuated conditions where what remains are under constant threat of

being enclosed (being privatized by individuals and corporations, monetized, turned into a new consumer product or service).

The pedagogy that strengthens the local traditions of intergenerational knowledge, skills, and patterns of mutual support that enable members of the community to be less dependent upon consumerism, and thus to have a smaller ecological footprint, requires the teacher and professor to adopt the role of the mediator, and to engage students in thick descriptions of the differences between their experiences in various cultural commons activities and experiences in the industrial/consumer culture. The mediator, unlike the critical pedagogy-oriented teacher, does not set out to decolonize or emancipate students from the intergenerational knowledge and skills that the critical pedagogy theorist has relegated to the realm of silence or has prejudged as backward. Rather, it is to encourage students to identify and to give voice to their experiences in the various cultural commons in their community as well as the corresponding industrial/consumer activities. The mediator does not give the answers in advance and does not assume at the outset that the teaching moment is also a moment of transformation. Rather the purpose of the mediator is to engage students in the process of thick description that leads to acquiring the language necessary for exercising the communicative competence required in the democratic process of deciding what needs to be resisted, fundamentally changed, or conserved and intergenerationally renewed.

Thick description can begin in the early grades by having students discuss the differences they experience in oral and print-based thinking and communication. Encouraging students to engage in a thick description would lead to giving voice to the differences in relationships, patterns of moral reciprocity, feelings, patterns of thinking, what cannot be made explicit in both modes of communication, and so forth. In effect, it leads to making explicit what may otherwise be taken-for-granted and thus not recognized as either problematic or as a life and community-enhancing pattern. Later, thick description may focus on the differences between an assembly-line experience and a craft endeavor, between developing a talent that leads to participating with others in one of the creative arts and becoming a consumer of artists whose works are part of the market system, between possessing the language necessary for identifying one's civil liberties and the experience of accepting the right of government and corporations to keep every aspect of daily life under constant surveillance, between growing a garden and being dependent upon foods flown in from the far reaches of the world, between acquiring the skills necessary for helping a neighbor and working at an unfulfilling job in order to hire someone else to make the repair, between work that is returned and work that is paid, between relying

upon intergenerational knowledge of healing practices and relying upon industrialized medicine, between living more self-reliant and community centered lives and being the autonomous individual required by the market systems of production and consumption, and so forth. The differences between the cultural commons and the market dictated relationships exist in both rural and urban environments. A fuller account of how different aspects of the cultural commons and forms of enclosure can be introduced at different stages in the educational process can be found in the online book, [Transforming Environmental Education: Making the Cultural and Environmental Commons the Focus of Educational Reform](http://cabowers.net), which can be accessed by going to <www.<http://cabowers.net>>. The online Handbook (Bowers, 2007b) that can be found at the same online address explains in greater detail the teacher's/professor's role as a mediator between the sub-culture of the local cultural commons and the subculture of the market/consumer dependent lifestyle.

The mediator, regardless of level of schooling (including home schooling), needs to encourage students to do a thick description of how different aspects of the cultural common impact natural systems—as well as a thick description of narratives and other aspects of the cultural commons that contribute to degrading natural systems and to oppressing, marginalizing, and exploiting other members of the community. The latter may take the form of doing a thick description of the higher values to which the community also subscribes (perhaps the social gospel or other sacred texts) and the community practices that contradict these higher values.

To reiterate the key reason that a critical pedagogy of place is an oxymoron is that the linguistic tradition of relying upon abstractions, including abstract theories that encode many of the same taken-for-granted assumptions that underlie both the idea of universal decolonization and the market liberals' efforts to universalize the West's consumer dependent lifestyle, fail to take account of the intergenerational traditions of habitation that still exist in communities. Places have a long and culturally varied history, while the language of a critical pedagogy of place has a specific history that carries forward the tradition of ignoring the diverse ways in which more ecologically centered cultures and community practices have contributed to long-term habitation of place.

One has only to recall the generalizations of Dewey, Freire, and Gadotti that reveal their respective one-true approaches to reconstructing experience, emancipation, and achieving a planetary consciousness to recognize that their prescriptions for change are based on a culturally uninformed theory that is intended to be universalized. Unless science/environmental educators are knowledgeable about how universal prescriptions too often become a cultural colonizing agenda they should be wary

of ignoring the inherent contradiction in a theory that leads to understanding “decolonization” only in terms of Western cultural assumptions, and that represents “reinhabitation” as an excuse for educators to ignore the different expressions of the local cultural commons that students need to help revitalize. Even though Gruenewald makes an effort to balance the transformative agenda of critical pedagogy with an awareness of what needs to be conserved, he still falls short of clarifying the nature and importance of the local cultural commons—and the pedagogy that is required for helping students recognize the differences between commons and market based experiences. Unfortunately, the assumptions underlying critical pedagogy are now so widely taken-for-granted among educators in nearly all subject areas that the silence about the need to acquire a deep knowledge of culture, that of the teacher as well as the culture of others that are to be decolonized, is likely to be ignored by science/environmental educators who identify with a critical pedagogy of place.

References

- Bowers, C. A. 2001. Mindful Conservatism: Rethinking the Ideological and Educational Basis of a Sustainable Future. Lanham, Maryland: Rowman & Littlefield.
- _____. 2006. Transforming Environmental Education: Making the Cultural and Environmental Commons the Focus of Educational Reform. Eugene, Oregon.
- <www. <http://cabowers.net>>
- _____. 2007a. “Philosophy, Language, and the Titanic Mind-Set”. *Language and Ecology*. Vol. 2, No. 2. pp. 1-15. <www.ecoling.net/journal.html>
- _____. 2007b. Handbook for Faculty on How to Introduce Cultural Commons and Ecojustice Issues into Their Courses. Eugene, Oregon. <www. <http://cabowers.net>>
- Crick, Francis. 1994. The Astonishing Hypothesis: The Scientific Search for the Soul. New York: Charles Scribner’s Sons.
- Dewey, John. 1916. Democracy and Education. New York: Macmillan.
- Freire, Paulo. 1974a. Education for Critical Consciousness. New York: The Seabury Press.
- _____. 1974b. Pedagogy of the Oppressed. New York: The Seabury Press.
- _____. 1985. The Politics of Education: Culture, Power, and Liberation. South Hadley, MA.: Bergin & Garvey.

- Gadotti, Moacir. 2000. "Pedagogy of the Earth and Culture of Sustainability." Sao Paulo, Brasil. Instituto Paulo Freire.
- Geertz, Clifford. 1973. Interpretation of Cultures. New York: Basic Books.
- Gouldner, Alvin W. 1979. The Future of Intellectuals and the Rise of a New Class. New York: Seabury Press.
- Gruenewald, David. May, 2003. "The Best of Both Worlds: A Critical Pedagogy of Place." Educational Researcher. Vol. 32, No. 4. pp. 3-12.
- Kovel, Joel. 2000. The Enemy of Nature: The End of Capitalism or the End of the World? London: Zed. Books.
- McLaren, Peter. 2005. Capitalists & Conquerors: A Critical Pedagogy Against Empire. Lanham, Maryland: Rowman & Littlefield.
- McLaren, Peter, and Houston, Donna. 2005. "The 'Nature' of Political Amnesia: A Response to C. A. (Chet) Bowers." Educational Studies. Vol. 37, No. 2. pp. 196-204.
- Roberts, Peter. 2000. Education, Literacy, and Humanization: Exploring the Work of Paulo Freire. Westport, CT.: Bergin & Garvey.
- Silver, Lee. 1997. Remaking Eden: How Genetic Engineering and Cloning Will Change the American Family. New York: Avon Press.
- Wilson, E. O. 1998. Consilience: The Unity of Knowledge. New York: Alfred A. Knopf.

Chapter 8 The Double Bind of Environmentalists Who Identify Themselves as Liberals

Paul Krugman's ends his new book, The Conscience of a Liberal, with a startling statement. While claiming to be an activist with the energy of a progressive, he makes the claim that "to be a liberal is in a sense to be a conservative" (p. 70). The reader is partly prepared for this seeming contradiction by the opening paragraph of his last chapter, "The Conscience of a Liberal", where he states that one of the seeming paradoxes of America in the early twenty-first century is that the agenda of liberals is essentially a conservative one: to restore the middle class, to defend social security and Medicare, the rule of law and democratic principles. The agenda of today's conservatives, as he puts it, is to reverse the achievements of Roosevelt's New Deal and to promote the free enterprise system—no matter what the human cost.

What George Lakoff referred to as the “Essential Guide for Progressives”, which is the sub- title of his book Don’t Think of an Elephant, also contains the same view of conservatives. But unlike Krugman, he sees no paradox in identifying as liberal progressives the advocates of conserving our traditions of civil liberties, and the environment.

Unfortunately, both Krugman and Lakoff reproduce today’s formulaic thinking that represents the anti-democratic and anti-social justice agenda of President George W. Bush as the expression of modern conservatism. And both reinforce the widely held misconception that Adam Smith’s principle of laissez-faire, with its magical “invisible hand”, is one of the conceptual and moral foundations of today’s conservatives—when it is a foundational belief of today’s market liberals. While both Krugman and Lakoff also agree that the success of conservatives can be traced to what they refer to as the conservative think tanks, such as the CATO, American Enterprise, and Hoover Institutes, they fail to question whether they have correctly labeled the political agenda of these institutes.

For anyone who has read the writings of early theorists of classical liberalism such as John Locke, Adam Smith, and John Stuart Mill—as well as the writings of philosophical conservatives such as Edmund Burke, Samuel Coleridge (pejoratively identified as one of the “Romantics” when he was actually a critic of the dehumanizing impact of the Industrial Revolution), the authors of The Federalists Papers, Michael Oakeshott and T. S. Eliot, the current use of political labels by self-identified liberals and conservatives is evidence of something fundamentally wrong with our educational system—especially our universities. Not to be outdone by Krugman, Lakoff, and other commentators who are mislabeling America’s retreat into the hell hole of friend/enemy politics, is the handy work of self-identified conservatives such as Rush Limbaugh who demonstrates a similar disregard for the fact that words have a history.

As most Americans are also unaware that words have a history, and that they can carry forward over many generations both the misconceptions as well as the wisdom of past thinkers, they are easily influenced by Limbaugh and the other faux conservative voices that have gained a strong foothold in the media. Thus, many people readily accept that the recent Supreme Court Justice appointments bent on reversing previous Supreme Court decisions are conservatives—because that is what journalists and political pundits tell them. That the doctrine of “original intent” is really part of the market liberal strategy for reversing laws that regulate business practices on the grounds that this function of government was not provided for by the men who wrote the Constitution will also go

unrecognized. In effect, the faux conservative media voices, including otherwise intelligent observers of the American political scene such as Bill Moyers who also mis-identifies the market liberal agenda of President George W. Bush and his base of supporters, have taken on the role of educators of the nation as to which agenda fits under which political label. Unfortunately, universities largely have abdicated their responsibility for introducing students to the history of liberal and conservative thought. Without this background knowledge, which many academics also lack, the meaning of words such as liberal, progressive, tradition, conservative, become context free metaphors that can be reframed without any form of accountability other than what fits the interests of groups seeking to impose their agenda on others.

Ironically, while liberals such as Krugman and Lakoff are unconsciously complicit in reinforcing the current misuse of our political vocabulary, the institutes they identify as the seed beds of modern conservative thinking such as the CATO, American Enterprise, and Hoover Institutes, identify themselves in a way that acknowledges their classical liberal lineage. According to the mission statement of the Hoover Institute, its primary purpose is to promote “the principles of individual, economic, and political freedom” and “private enterprise”. The American Enterprise Institute makes an identical claim on its website to defend the same classical liberal principles; but puts them in this order: “the institutions of American freedom and democratic capitalism—limited government, private enterprise, individual freedom and responsibility, vigilant and effective defense and foreign policies, political accountability, and open debate. The mission statement of the CATO Institute, which had a budget last year of 22.4 million dollars, includes what the institute explicitly acknowledges as its “market-liberal” agenda of promoting “limited government, individual liberty, free markets, and peace”. Its mission statement includes the observation that seems to have escaped the attention of liberal commentators who continue to identify the CATO institute as a conservative think tank. To quote directly: “ ‘Conservative’ smacks of an unwillingness to change, of a desire to preserve the status quo. Only in America do people seem to refer to free-market capitalism –the most progressive, dynamic, and ever –changing system the world has ever known –as conservative”.

The use of the label “neo-conservative” and now “neocons” is yet another example of formulaic word play. Awareness of the history of this group, which now justifies the invasion of Iraq, defends extraordinary rendition and the use of torture, and is promoting war with Iran, should originally have led to their being tagged with the label of market liberal—and, more recently, as anti-democratic extremists. Given their current political and economic agenda labeling them as neo-

Fascists would not be too far off the mark. Two early books that were mislabeled as examples of neo-conservative thinking included George Gilder's Wealth and Capitalism (1981) and Michael Novak's The Spirit of Democratic Capitalism (1982). Neither one addressed the ideas of philosophic conservative thinkers such as Burke and Oakeshott. Other early spokespersons for what was mistakenly referred to as neoconservatism, such as Irving Kristol, Gertrude Himmelfarb, and Norman Podhoretz, attacked what they considered as the social engineering approach of their former liberal colleagues. They revived the laissez-faire liberal argument for reducing the role of government in providing programs that enabled people to escape from poverty and limited opportunities. The true responsibility of government, as William Kristol would later put it, is to promote the "politics of liberty" and the "sociology of virtue". What he and other neoconservatives meant by these high-sounding phrases is that the government should eliminate the anti-poverty programs and, in their place, promote the social uplifting potential of capitalism.

The inability of our leading intellectuals to recognize the travesty in labeling this group as neoconservatives is now being repeated on a daily basis in the media. Every effort of the Bush Administration to dismantle our checks and balances system of government, and to turn the previous functions of government over to capitalists who place their own interests above those of the public, is identified with conservatism. The practices of extraordinary rendition and Presidential signing statements, along with putting in place the technology for achieving a total surveillance society, are similarly represented as carrying out the true mission of conservatism in an era of total warfare with the external enemies of the American way of life.

This current Orwellian political discourse serves two purposes. For many Americans who experience the rapid rate of cultural change as a threat to life as they know it, the constant references to the conservatism of the present administration is reassuring—even if they do not understand the political system that is at the end of the slippery slope President Bush and Vice-President Cheney are leading them down. In effect, the market liberal and anti-democratic extremists gain much of their support from this largely non-reflective segment of society. And as the term conservative becomes increasingly associated with an anti-social and anti-ecojustice agenda, advocates of social justice continue to identify themselves as liberals without questioning the double bind this puts them in.

The double bind that few liberals recognize is that the deep, largely taken-for-granted cultural assumptions that underlie Western liberalism are, with only a few exceptions, the same assumptions that gave conceptual direction and moral legitimacy to the Industrial Revolution that

has now entered the digital phase of globalization. These assumptions underlie the liberal's penchant for equating change with progress, for representing the autonomous individual as the highest expression of human development, for thinking of the environment as needing to be brought under rational control, and for imposing their way of thinking on what they regard as the less developed cultures of the world. What is seldom recognized is that the Industrial Revolution required the autonomous individual who, in lacking the intergenerational knowledge and support of community, would be dependent upon consumerism to survive. Similarly, the driving force of the Industrial Revolution was the constant quest for progress in developing new technologies and markets. The Industrial Revolution also depended upon advances in science and technology in order to further exploit the Earth's natural systems.. The liberal view of other cultures as needing to adopt the Western model of development also fits what the Industrial Revolution required.

Yet there continue to be differences between how liberals understand the nature of progress. A useful way of identifying these differences is to identify liberals working to alleviate poverty and various forms of exploitation as social justice liberals. Liberals who use critical inquiry to develop new technologies and to exploit new markets should be labeled as market liberals. The former were and continue to be critical of the exploitive nature of the free enterprise system, while the latter were and still are willing to let the "invisible hand" supposedly operating in the free market system distribute the benefits to the deserving—which usually means those who are already privileged. Given these differences, and they are hugely important, the two groups of liberals nevertheless share a common set of silences and prejudices. Already mentioned is their shared prejudice of the knowledge systems of other cultures—particularly indigenous cultures. They also share a very narrow and thus basic misunderstanding of the nature and importance of cultural traditions. In effect, they both fail to recognize the misconceptions of the Enlightenment thinkers who only identified oppressive traditions, and did not understand the intergenerational knowledge and skills that enabled communities to be more self-sufficient and to have complex symbolic lives. And both social justice and market liberals fail to understand that language is not simply a conduit in a sender/receiver process of communication, but instead is metaphorically layered in ways that reproduce past misconceptions in today's taken-for-granted patterns of thinking. This latter oversight accounts for how both social justice and market liberals are continually embracing whatever is represented as a progressive step forward—and not asking about which traditions vital to the well-being of community and to a sustainable future are being lost.

There are many unrecognized assumptions that are shared by students on university campuses who identify themselves as conservatives and the professors whom they regard as subverting the American way of life. Again, the failure to recognize the shared assumptions and silences can, in part, be traced to the failure of universities to engage students in a discussion of the writings of the early political theorists whose influence continues to today. The misunderstandings resulting from this lack of historical knowledge are particularly evident when the beliefs and values of the self-identified conservative students are compared with the market liberal agenda promoted by the CATO and American Enterprise Institutes. Indeed, they turn out to be nearly identical—though some of these students balk at the idea of open debate as advocated by the American Enterprise Institute. As most university faculty embrace social justice liberalism they see no reason to introduce students to the thinking of philosophical conservatives or to the ideas of classical liberal thinkers. And the few social justice faculty who are introducing their students to the writings of environmental writers such as Rachel Carson, Aldo Leopold, Wendell Berry, and Vandana Shiva fail to clarify for students that these are essentially conservative environmental thinkers. By not engaging students in discussions of the different forms of conservatism, including the faux conservatism of President George W. Bush and his religious, corporate, and military base of support, students are more likely to accept without question Lakoff's designation of environmentalists as liberal progressive activists. And they will continue to perpetuate the silences and prejudices that have been an aspect of liberal thinking since the time of the Enlightenment—which will keep them from recognizing that revitalizing the diversity of the world's cultural commons will be a necessary part of achieving a sustainable future.

The reports of the Intergovernmental Panel on Climate Control, which reflect the consensus thinking of 600 scientists from more than 100 countries on the nature and causes of global warming, brings into focus another aspect of the slippery slope that both the market and social justice liberals are greasing. As the melting of the permafrost in the northern latitudes release the vast quantity of methane gas that is an even greater contributor to global warming than carbon dioxide, as the glaciers that are the source of fresh water for hundreds of millions of people disappear, as the temperature of the world's oceans rise and as the oceans absorb more CO₂ that contribute to their increased acidity, as droughts and changes in weather patterns forces the migration of plants, animals, and people, and as more of the world's major fisheries near collapse, the convergence of the slippery slope leading to environmental catastrophe with the slippery slope leading to a fascist form

of government become a more likely possibility. What is not usually recognized is that the emergence of fascism between the two world wars resulted when democratic institutions became so weakened that they were no longer able to address the sources of economic and social unrest. People have demonstrated time and again that they prefer order over chaos, and they have often embraced the strong political leader who, as the supreme “decider”, does away with the seemingly endless debates which are at the center of the democratic process. The convergence of economic unrest resulting from the globalization of the market liberal agenda with the deepening ecological crises could easily lead to a repeat of this earlier history.

Both market and social justice liberals carry forward the silences and prejudices that have been part of the legacy of Enlightenment thinkers—indeed some of these silences and prejudices can be traced back to the thinking of Plato who invented the idea of pure thinking that supposedly is free of cultural influences carried forward through narratives. These include the intergenerational knowledge, skills, and activities that enable members of communities to live more self-sufficient and thus less money and consumer dependent lives. Working to conserve the diversity of the world’s languages and thus the diversity of knowledge of local ecosystems is yet another critical area of concern that is not being given adequate attention by social justice liberals who, unlike Krugman, refuse to consider anything that is associated with the word conservatism—partly because they lack knowledge of the many forms of conserving that are an inescapable part of daily life-- and partly because the word conservatism is now associated with authoritarian politics and the pursuit of economic self-interest.

There are many other analogs than those associated with the ideas and policies of market liberals that need to be considered in determining the different meanings of the word “conservatism”. Briefly, learning to think and communicate in the language of one’s cultural groups conserves its many taken-for-granted patterns of thinking and values. Our DNA is also a powerful conserving force that influences the most fundamental aspects of our biology. The taken-for-granted nature of most of our cultural knowledge and values is also an inescapable aspect of what can be referred to as embodied conservatism. And then there is temperamental conservatism which is expressed in a preference for certain foods, wearing certain clothes, having certain friends, and so forth. These different expressions of conservatism are largely part of our embodied experiences, and are different in fundamental ways from conservative ideas of how societies should be organized and governed. In order to conserve the gains in social justice and civil liberties it is important to keep in mind that not

all of conservative ideas, such as those advocating the right of states to enforce racist policies, the cultural tradition of child brides, honor killings, and poll taxes, should be carried forward. On the other hand, the current practice of using the word to stigmatize individuals and groups who are more aware of the traditions that are the basis of their mutually supportive and intergenerationally connected communities should not be continued.

In order to make more informed judgments of about the different expressions of conservatism—judgments about what should be supported and what should be resisted—we need to expand our political vocabulary. In addition to rectifying our use of political terminology so that labels accurately reflect the beliefs and practices of different groups, we need to follow the practice of different religious groups who use adjectives that identify the religious group's specific orientation or the tradition it is part of. Examples include the distinction between Orthodox and Reform Judaism, Greek Orthodox Christians and Evangelical Christians, moderate and fundamentalists Muslims, and so forth. The adjectives are not always as accurate as we would like, but they avoid the problem of including a wide range of interpretations and agendas under a single rubric. The distinction between market and social justice liberals is an example that has been introduced here. Other examples might include environmental conservatives and indigenous conservatives. The problem of relying upon a single rubric can be seen in Thomas Frank's reference to the Christians in Kansas who support President George W. Bush's efforts to dismantle the separation of powers and the Constitution as conservative. Referring to them as members of the religious right would have brought into focus their political agenda, which included abolishing abortion, gays, separation of church and state, and equal opportunities for women and other previously marginalized groups. Journalists and media pundits need to use the label of extremists if it accurately represents the political agenda of certain individuals and groups. For example, Vice-President Richard Cheney and David Addington need to be identified as extremists. And there is a need to use the label of fascist when it accurately fits the ideas and political agenda of an individual or group. It is important to note that few graduates of our universities possess a knowledge of the core ideas and practices shared by different fascist regimes, and thus are unable to recognize political trends that are moving the society in that direction.

Most of all, we need to avoid the intellectual laziness that characterizes so much of our formulaic use of conservative and liberal. There is an urgent need for the more reflective people to criticize our universities for their failure to educate students about the history of ideas we now refer

to as ideologies—including the need for them to understand which ideologies are contributing to overshooting the sustaining capacity of the Earth’s natural systems. If we can’t get this figured out we will continue to be caught in the double bind of promoting the globalization of the consumer dependent lifestyle while at the same time searching for the technologies that will slow the rate of global warming partly being caused by consumerism. And our difficulties will be further exacerbated if the current misuse of our most prominent political language continues to marginalize the awareness that in this era of political uncertainties and deepening ecological crises we need a political discourse that addresses what needs to be conserved.

References

- Gilder, George. 1881. Wealth and Capitalism. New York: Basic Books.
- Krugman, Paul. 2007. Conscience of a Liberal. New York: W. W. Norton.
- Lakoff, George. 2004. Don’t Think of an Elephant: Know Your Values and Frame the Debate. White River Junction. VT.: Chelsea Green.
- Novak, Michael. 1982. The Spirit of Democratic Capitalism. New York: Simon and Schuster.

Chapter 9 The Real Failure of University Faculty

The current debate about whether university faculty indoctrinate students with liberal ideas, as well as the lack of a public outcry about the recent attacks on judges for not making decisions in line with the White House’s political agenda, suggest that the real failure of university faculty is being overlooked. A basic misunderstanding about what the terms “conservatism” and “liberalism” stand for, both historically and in today’s context, is shared by students who label themselves as conservatives, as well as by the self-labeled liberal faculty who are concerned about conserving species, habitats, and the threats to our traditions that are the basis of a democratic form of government. This misunderstanding also underlies the public’s mislabeling of “conservative” think tanks and organizations that are funding the current attack on higher education, as well as the media pundits and journalists who are, in their reporting, passing on the misconceptions they acquired during their years in university classrooms. Labeling Vice President Richard Cheney as a

conservative and, in another newspaper account, as a “market-liberal conservative” are just one of many examples that could be cited.

The real failure of university faculty has been in not enabling students to understand that words have a history—especially the words that make up our political vocabulary. Words such as conservative and liberal carry forward in a highly condensed manner ideas, values, and silences that earlier emerged from complex debates and writings. The current charges about indoctrination in the classroom might serve a more useful purpose if students had been asked to read and reflect on the writings of such conservative thinkers as Edmund Burke, Samuel Coleridge, T. S. Eliot, Michael Oakshott, James Madison, and Clinton Rossiter. Writers concerned about conserving species, habitats, and the diversity of the world’s cultural commons that represent alternatives to a consumer-dependent lifestyle, such as Wendell Berry, Vandana Shiva, and G. Bonfil Batalla, should also be read and discussed. Students should also be knowledgeable about the so-called conservative thinkers who supported more problematic agendas, such as John Calhoun and Leo Strauss.

In addition, students should have been asked to read the writings of classical liberal thinkers such as John Locke, Adam Smith, John S. Mill, as well as the writings of Herbert Spencer who used Social Darwinism to explain the significance of winners in a free-market system. More contemporary liberal and libertarian thinkers such as Friederich Hayek, Murray Rothbard, and the self-misabeled neoconservative writers such as William Kristol and Michael Novak should be evaluated in terms of what they want to conserve beyond that of the free market systems and a reduced role for government—which are classical liberal priorities.

The list of conservative and liberal thinkers might vary, but the exposure to the core ideas and values of both traditions would lead to a more informed and thus less formulaic way of thinking and, hopefully, to a reduced level of recrimination in today’s political debates. The self-identified conservative students, media pundits, and think-tank intellectuals might then be recognized as pursuing a political agenda that has its roots in the liberal tradition that goes back to Locke and Smith. Their real goal, which is not to conserve the diversity of the world’s traditions of community self-sufficiency, but to change them in ways that enable corporations to expand markets and to exploit further the environment, might also be more widely recognized.

Widely shared knowledge of what separates the tradition of conservatism from the tradition of liberalism that so many professors identify with and promote in their classes (e.g., the assumption that the individual is the basic social unit, that change is progressive, that the Western way of thinking

is the most culturally advanced, etc.) might lead more faculty to be aware of the mixed messages they convey to their students. While their liberalism is based on many of the same assumptions that underlie the excesses of the industrial culture they criticize, they also communicate to their students their concerns about the current efforts to overturn the traditions that genuine conservatives have historically viewed as essential to the civil rights of the current and future generations. The undermining of the separation of church and state, an independent judiciary, key provisions of the Constitution, as well as the efforts to reverse the gains in the areas of civil rights, economic support for marginalized social groups, the legal protections won by environmentalists, and what remains of civilian control of the military, are sources of deep concern on the part of many faculty who identify themselves as liberals. So little is understood about the complex and varied history of conservative thinking that these professors use the language of liberalism to argue for conserving what is now under threat from powerful political groups who call themselves conservatives but are working to bring more aspects of daily life under the control of market forces—even as these market forces are outsourcing jobs, cutting back and even eliminating retirement and health benefits.

The word conservative has a pejorative meaning for most liberal faculty, while many of the faculty who identify themselves as conservatives are either reactionary (wanting to go back to an ethnocentric curriculum that was problematic in the first place) or are proponents of the “invisible hand” that supposedly governs the winners and losers in free-markets, as well as which ideas will prevail. The misuse of the term conservative, as well as the widespread inclination to associate it with European traditions of conservatism, make it difficult for these liberal faculty to ask their students to consider what needs to be conserved in this era of ecological uncertainty and political regression—as well as what needs to be reformed or changed entirely.

The irony that characterizes the current furor over so-called conservative concerns about liberal indoctrination in the classrooms of America is that both the majority of liberal faculty as well as the self-labeled conservative students support different facets of the modern social agenda—with the liberals supporting the social justice agenda that emphasizes individual opportunity in a secular consumer dependent society while the faux conservatives support an economic agenda that requires the destruction of intergenerationally connected and culturally diverse communities. The aspects of the modern agenda these two groups share in common are now coming under attack by religious extremists who are also caught in the double bind of supporting the economic system that is undermining the moral absolutes they have extrapolated from the written accounts of narratives,

experiences, and spiritual insights of ancient tribal cultures. At least the libertarian CATO Institute recognized the mindlessness that is so widespread in our political debates when it put on its website that only in America is its political agenda identified with conservatism.

One more failure that characterizes a university education in America is that few students will graduate with an understanding of the characteristics of a fascist society—and how fascism has emerged within weakened democratic societies.

Chapter 10 Rethinking Social Justice Issues Within an Eco-Justice

Conceptual and Moral Framework

As the social justice issues of class, race, and gender have been the dominant concern of many educational studies faculty over the last decades, it is now time to ask whether the recent evidence of global warming, changes in the chemistry of the world's oceans, and the increasing shortage of potable water should lead to developing a new strategy for ameliorating these long standing sources of injustice and poverty. Given the amount of time devoted to discussing class, race, and gender issues, as well as the number of books that focus on these issues, little has actually been achieved in effecting the systemic changes required for marginalized social groups to participate on more equal terms in the public arenas of politics, economics, and educational opportunities. Corporations in the United States continue to shape governmental policies that deepen the economic plight of marginalized groups who live at the bottom of the wage scale, while raising the cost of drugs and medical care beyond what they can afford. Overall, the democratic process itself has become degraded by corporate and other special interests to the point where millions of people continue to be mired in poverty and hopelessness.

The recent acceleration of economic globalization and the deepening of the ecological crisis that are now impacting people's daily lives suggest that a radical rethinking of how to address social justice issues is needed. The growing awareness of these global developments, which includes the near total collapse of the free market system, a weakened labor movement and rapid rise in unemployment, the decline in the size of the middle class, and a need to change the ecological impact of all citizens (even that of the poor who have not been educated about how to live less environmentally destructive lives), means that the old assumptions about achieving a more socially just society have to be re-examined.

Social justice thinking has largely been framed in terms of middle class assumptions about individualism, progress, a world of unlimited exploitable natural resources, and education as a

source of individual empowerment. The ultimate goal of achieving greater social justice for marginalized groups has been to enable them to participate on equal terms in the areas of work, politics, and the culture of consumerism. The guiding priorities of ecojustice-based educational reforms are, on the other hand, both more global in terms of analysis and accountability, and more local in terms of educational strategies that reverse the process of deskilling that is part of the destruction of community systems of mutual support that began with the rise of the techno-scientific based industrial culture. These priorities can be summarized as eliminating environmental racism, resisting the forces that are colonizing Third World cultures and exploiting their natural resources, revitalizing the local cultural and environmental commons that are sites of resistance to the expansion of the industrial/consumer dependent lifestyle, adopting a lifestyle that does not degrade the prospects of future generations, and developing an ecological consciousness that respects the right of natural systems to renew themselves.

Basing daily life on ecojustice criteria means taking account of the impact of the consumer dependent lifestyle that is being promoted in our public schools and universities by asking whether it is largely responsible for the economic and cultural colonization of Third World societies, as well as the environmental racism that exposes minority groups to the toxic chemicals that the industrial/consumer-oriented culture relies upon. Ecojustice thinking also brings into focus the need to consider the existing community-centered alternatives to the deskilled individual lifestyle that is increasingly dependent upon consumerism—even as the sources of employment become more uncertain because of outsourcing to low-wage regions of the world, and the drive to increase profits by replacing workers with computer-driven machines. As the life-sustaining ecosystems become more degraded, there is also the question of whether the current industrial/consumer-oriented lifestyle that is taken-for-granted by many educational advocates of social justice is undermining the prospects of future generations. Other concerns of ecojustice thinking include the need to undertake educational reforms that address our responsibility for leaving future generations with sustainable ecosystems, which also means recognizing the right of non-human forms of life to reproduce themselves in sustainable ways.

While the environment is being degraded to the point where the scarcity of protein, water, and energy is driving up prices, thus further impoverishing the already poor, the advertising industry is spending billions of dollars a year in order to perpetuate the public's addiction to consuming the latest fashions, technologies, and forms of entertainment. Public awareness of the environmental

changes that scientists are warning about is further obfuscated by the big-box stores and shopping malls that stock their shelves with a super abundance of consumer products—thus further perpetuating the illusion of plenitude. Glitz, easy credit and an indifference to the dangers of going deep into debt are just part of the culture that now dominates the majority of the people's lives—that is, those who have not lost their well paying jobs, health and retirement benefits, and are now reduced to a minimum-wage lifestyle. The poor and marginalized, ranging from single mothers, urban minority youth, migrant farm workers, and a wide range of people whose skin color and lack of educational background disqualify them from other than menial forms of labor in industrial food outlets and other low-paying service-industry jobs, are too focused on meeting the most basic needs of food and shelter to be aware that there are community-centered alternatives to the industrial/consumer lifestyle they have been excluded from participating in. As Barbara Ehrenreich pointed out in a recent interview with Bill Moyers (2007), the poor live so close to the edge that going without pay for the couple of weeks it takes to find a more high-paying job is unthinkable. In effect, poverty restricts even this most basic option that the middle class can take for granted.

The central priorities of ecojustice advocates do not have their roots in abstract theory. Rather, the traditions of intergenerational knowledge and patterns of mutual support that enable people to live in ways where market forces do not dominate everyday life have been around since the beginning of human history. They are still present in every community across North America and in other parts of the world. Historically, these traditions were known as the commons; that is, what is freely shared by the members of the community, which also includes local decision-making. The norms that governed the cultural and environmental commons were passed along orally and differed from culture to culture. The Romans were the first to establish a written record of the commons, which they identified as the local streams, woods, fields, animals, and so forth. The cultural commons, which include the intergenerational knowledge and skills necessary for gathering, preparing, and sharing food, the medicinal properties of plants and where to find them, narratives of courage and of hubris, the rules that governed community members who violated local norms of justice, the sharing of technological skills and craft knowledge, the mythologies and prejudices that regulated who had privileged positions in the community, and so forth, have only recently been identified as part of the commons. The cultural commons also include the voluntary associations that are sources of mutual support within the community, as well as groups that come to together to promote agendas that range from providing safe bicycle lanes within the community to supporting

the peace efforts of national politicians and providing aid to people in other parts of the world that have experienced a natural disaster. Unfortunately, the intergenerational sources of empowerment and community self-sufficiency are now being threatened by the market-liberal traditions of private property, anomic individualism, the expansion of the industrial approach to production and consumption, the growing hegemony of the capitalist ethos, and the rise of corporate power.

While the causes of the economic crisis that is spreading around the world are systemic as well as a function of human greed, it is important to note that the main focus of the media, politicians, and public is on regaining the jobs that will enable people to return to their previous consumer-dependent lifestyles. That is, there is little discussion of community-centered alternatives that are here being referred to as the cultural commons—and thus little discussion of how the political economy of the local cultural commons can become part of the basis for meeting the daily needs for food, housing, medical care, education. If attention were to be given to the lifestyles of people who are more fully engaged in their local cultural commons it would become clearer that they rely less upon a money economy and thus are less exposed to the exploitive forces that are inherent in the industrial governed market place. The voluntary simplicity movement has demonstrated that the political economy of the cultural and environmental commons leads to a different understanding of wealth—on that takes account of skills, mutual support systems, and community well-being. Yet, it is important to recognize that there is still a need for meaningful forms of work that contribute to a living wage. The combination of local decision-making, which is a key feature of many local cultural commons, and the spread of such developments as micro-banks and the pooling of local resources for housing projects and other community infrastructure needs, are also evidence of the need to combine thinking about local self-sufficiency and ecological sustainability.

The relationships between the local cultural commons found in every community today and the industrial/consumer culture have not been mutually supportive. Indeed, the people who promote the expansion of the industrial/consumer-dependent lifestyle, and thus the accumulation of capital, view the largely non-monetized cultural commons as potential markets to be exploited. Their goal is to replace intergenerational skills and patterns of mutual support with new technologies that must be privately owned and with expert systems that represent as sources of backwardness the traditional values and forms of knowledge—such as civil liberties, patterns of returning labor, mentoring, and knowledge of how to live lightly on the land, that have been the strength of many cultural commons. At the time the environmental commons in rural England were being transformed during the early

stages of the Industrial Revolution, the process of limiting free access and use on a none monetized basis, as well as overturning of local decision-making, was referred to as “enclosure”. That is, the enclosure of the environmental commons involved the introduction of private ownership and integration into a money economy, which often led to decision making being transferred to distant owners—and later to corporations that made increasing profits the primary criterion for exploiting the natural environment.

Now that we can recognize the cultural beliefs and practices, which now include cyberspace, as part of the cultural commons that enable community members to be less dependent upon a money economy, it is possible to recognize the many ways in which different aspects of the local cultural commons are being enclosed by today’s market forces—as well as by ideologies, technologies, prejudices, and silences. Public schools and universities continue to be complicit in reinforcing the cultural assumptions that further undermine the viability of the cultural commons even as environmental scientists are working to conserve what remains of the environmental commons. Many social- justice-oriented faculty continue to reinforce many of the same cultural assumptions that gave conceptual direction and moral legitimacy to the industrial/consumer-dependent lifestyle even as they criticize the exploitive nature of capitalism. These shared assumptions include the idea of the autonomous individual, the progressive nature of change, an anthropocentric view of human/nature relationships, and the drive to impose these assumptions on other cultures under the rubric of “development”, as well as the same silences about the local community sources of self-sufficiency and mutual support. (Sachs,1992).

While the diversity of the world’s cultural commons currently represents sites of resistance to economic globalization, it is important to avoid romanticizing the cultural commons. In many cultures, including the local communities across North America, the cultural commons also include narratives and traditions that perpetuate different forms of discrimination and economic exploitation. That is, the stoning to death of the woman who seeks to marry outside of her tribe, the market liberal ideology that equates social progress with an economy that makes survival of the fittest the ultimate test of individual success, and the various forms of racial, class, and gender prejudices also have their roots in the traditions of some cultural commons. Ironically, these non-monetized traditional beliefs and practices (which have dire economic and social consequences for those who are the subjects of discrimination) were and still are generally sustained in communities which may also

possess networks of mutual support that reduce reliance on consumerism—and that have a smaller ecological footprint.

The local cultural commons should not be regenerated and supported just because they represent alternatives to the industrial/consumer-oriented culture that is being globalized--and that put at further risk the possibility of achieving a sustainable future. Rather, the different traditions of the cultural commons need to be examined in terms of whether they support traditions of civil liberties, as well as moral reciprocity in the treatment of all members of the community as deserving the right to an equal opportunity to develop their personal talents and to make their contributions to regenerating the life-supporting cultural commons. Challenging the traditions of the cultural commons that are sources of exploitation and marginalization should also be part of a more global and ecologically informed ecojustice pedagogy.

As pointed out in C. A. Bowers' online *Handbook for Faculty Workshops on How to Introduce Cultural Commons and Ecojustice Issues Into Their Courses*, (2007), the unique characteristics of the cultural and environmental commons require a radically different approach than the current emphasis on making individual emancipation, promoting the students' construction of their own knowledge, and making higher test scores the primary foci of educational reform. There are a number of unique characteristics of the cultural commons that an ecojustice pedagogy needs to take into account. The first is that most of the traditions that members of a community participate in on a daily basis are taken-for-granted, such as the tradition of English speakers using the subject-verb-object pattern of oral and written communication, assuming they are innocent until proven guilty before a jury of peers, and using language as a conduit in a sender/receiver process of communication—to cite just a few of the taken-for-granted patterns of daily life. The taken-for-granted status of most aspects of the local cultural commons is important for several reasons. In being part of tacit, contextual, and largely taken-for-granted experience, they are mostly excluded from the curriculum of public schools and universities. In being excluded from the curriculum at all levels of the formal education process, and in being largely taken-for-granted by members of the community who are at the same time being constantly indoctrinated with the message that change is essential to progress, the loss (that is, enclosure) of different traditions of the cultural commons go unnoticed—except for the people who are consciously carrying forward one of the traditions of the cultural commons, such as weaving, protecting civil liberties, utilizing craft knowledge and skill, participating in local theater, and so forth.

The taken-for-granted nature of the individual's embodied experience of the cultural commons, which may include racist and gender forms of discrimination, is just one of the characteristics of daily experience that require a different approach to teaching and learning than is found in current approaches that are based on many of the same cultural assumptions (or what I have referred to elsewhere as root metaphors) that underlie the industrial/consumer-oriented culture that is overshooting the life-sustaining capacity of natural systems. The emphasis on explicit forms of knowledge, which is reinforced by reliance on print-based knowledge, testing, and supposedly objective knowledge, marginalizes the importance of helping students recognize the differences between their experiences in the cultural commons and in the market/consumer-oriented culture.

Another bias in current approaches to education that can be traced back to Plato's argument that *pure thinking* leads to universal truths that are more reliable than thinking grounded in embodied/culturally-influenced experiences. The Western theorists who followed in this tradition of assuming that abstract words are a more accurate source of knowledge also were unaware of the nature and ecological importance of their local cultural commons. Indeed, they held in contempt the forms of face-to-face, intergenerationally shared knowledge and skill, and relegated them to low-status knowledge. This tradition is still evident in the thinking of current educational reformers who assume that words such as individualism, democracy, tradition (which reproduces the Enlightenment assumptions of being a source of backwardness and special privileges), intelligence, and progress have universal meanings. These educational reformers continue to ignore how the analogs that frame the meaning of these metaphors carry forward the misconceptions of earlier thinkers (P. Freire, 1974; H. Giroux, 1988; D. Gruenewald, 2008). This pattern of thinking further marginalizes an awareness of the embodied experiences in the different community traditions that are being referred to here as part of the cultural commons. One of the consequences of the silences about the nature and complexity of the cultural commons, as well as the constant reminder that traditions are impediments to progress, which are being reinforced in most areas of the public school and university curriculum, is that students enter adulthood without an awareness of the different economic and ideological forces that are enclosing what remains of the cultural commons. For most of them, the industrial/consumer culture is the arena in which they will personally succeed or fail—and the outcome of their individual quests remain disconnected in their thinking from the rapid rate of degradation of the world's ecosystems.

There is now a major body of writing that addresses both the various ways in which public schools reproduce the culture's traditions of class and other forms of discrimination, as well as the reforms that need to be undertaken in order to achieve a more equitable society. Criticism of prejudicial language, silences in the curriculum, preconceptions about the potential (or lack thereof) of already marginalized students, tracking and other systemic forms of discrimination, have been the mainstays of educational foundations and educational studies courses for the past several decades. While there have been some social justice gains, particularly in the areas of race and gender, there remains much to be done—especially since the changes resulting from economic globalization and the global warming will have the greatest impact on minority groups whose economic gains have been, at best, both minimal and fragile. Critiques of the beliefs and values that have kept people of color, women, and other people restricted by other class barriers have actually been critiques of the reactionary traditions found within some cultural commons. Unfortunately, the theories that framed these critiques were not informed about the complex nature of the cultural commons. Indeed, the phrase *cultural commons* has not been used (D. Gruenewald and G. Smith, 2008). The main consequence of this lack of understanding is that the aspects of the cultural commons that hold out the prospect of finding community-centered alternatives to the negative impact of the industrial culture have not been part of the well intended efforts to use the schools to eliminate the sources of poverty and injustice.

The use of a sociological interpretative framework seemed ideally suited to bringing into focus economic, political, and educational inequities. Unfortunately, it has led to ignoring the questions that would have arisen if a more anthropologically informed interpretative framework had been relied upon. Awareness of a deep understanding of cultural differences could easily have brought into question how notions of individual freedom and equality could be reconciled with the importance that has been given in recent years to avoiding cultural colonization. For example, the Western ideal of individual freedom and the diversity of non-Western cultures do not easily fit together. Another limitation of the sociological interpretative framework is that it keeps the focus of analysis and recommendations for reform on human-to-human relationships, with the human-to-nature relationships being ignored. The evidence for this claim can easily be substantiated by reading educational writers who have most influenced how the analysis of class, race, and gender has been framed—writers such as Samuel Bowles, Herb Gintis, Michael Apple, Henry Giroux, and Peter McLaren. Recently Bowles and Gintis have been writing about the commons, and McLaren has

now turned attention to explaining how Marxism can guide educational reforms that address issues of sustainability (P, McLaren, 2005). The key point is that today's educational discourse on class, race, and gender continues to ignore, with only a few exceptions, the implications of the ecological crises for the very social groups they want to emancipate.

The use of the cultural commons as the conceptual framework for analyzing the various forms of discrimination, as well as for guiding educational reforms, has several advantages that a sociological framework lacks. To reiterate, the cultural commons represent all of the forms of knowledge, values, practices, and relationships that have been handed down over generations that have been the basis of individual and community self-sufficiency—and that have enabled members of the community to be less dependent upon a money economy. While the previous discussion of the reactionary and, in some cases, horrific practices of some of the world's cultural commons needs to be kept in mind, there are other characteristics of self-sufficiency that existed prior to what Karl Polanyi called the *Great Transformation*, when the emergence of the industrial system of production led to the enclosure of the environmental commons (Polanyi, 2002). In *Rebels Against the Future: The Luddites and Their War on the Industrial Revolution*, (1995), Kirkpatrick Sale summed up how the survival and global expansion of the industrial system of production and consumption depended upon the enclosure of the cultural commons. As he put it,

All that “community” implies—self-sufficiency, mutual aid, morality in the market place, stubborn tradition, regulation by custom, organic knowledge instead of mechanistic science—had to be steadily and systematically disrupted and displaced. All the practices that kept the individual from being a consumer had to be done away with so that the cogs and wheels of an unfettered machine called the ‘economy’ could operate with interference, influenced merely by invisible hands and inevitable balances” p. 38.

Sale does not refer to the community traditions of self sufficiency as the cultural commons, but he accurately makes the point that the industrial/consumer-dependent culture requires the destruction of the different forms of intergenerational knowledge, skills and mutually supportive relationships that enabled people to live less money and thus less consumer-dependent lives. In effect, he is describing how the success of the industrial system of production and consumption required the destruction of the local cultural and environmental commons. What is ironic is that the kind of individual required by the industrial/consumer-dependent culture is the autonomous individual being promoted by many of today's educational reformers. It is also important to note that the lack of intergenerational

knowledge that reduces dependence upon consumerism contributes to an important aspect of poverty that is seldom discussed—even though it leads to the forms of poverty that threaten the individual's health and leads to other forms of insecurity.

Unlike the limited conceptual possibilities of a sociological interpretative framework and vocabulary, the cultural commons is the phrase that encompasses the traditions of community that are nested in larger social and ecological systems. These traditions, as mentioned earlier, range from local approaches to growing and preparing food as alternatives to an industrialized system that is so damaging to ecosystems and to intergenerational approaches to healing that differ from the highly monetized and industrial approaches of today's medicine (which are increasingly becoming dependent upon patenting indigenous knowledge of the medicinal properties of plants) (V, Shiva, 1996). Depending upon the local community and cultural traditions, the intergenerational knowledge also includes the creative arts passed on through mentoring that differ from the star system of commercialized music and visual arts, as well as narratives of the labor, feminist, and civil rights movements rather than the mind-numbing television sit-coms that serve to hook viewers to the multi-billion advertising industry. The traditions of civil rights that go back to the Magna Carta of 1215 are also part of the cultural commons. Unfortunately, they are now being enclosed by the growing alliance between market-liberal-dominated governments, corporations, universities, and the military establishment. A more fine-grained analysis of the differences between the cultural commons and the industrial/consumer-dependent culture that is now being globalized would involve a discussion of the differences between community mentors and university-trained experts who have an ego and economic investment in imposing theory-based solutions on people's lives, between face-to-face and computer-mediated communication, between community traditions of reciprocity where work is returned and work that has to be paid for, between developing personal interests and skills and being a consumer of other people's talents, as well as between the embodied experiences of being in the natural environment and the disembodied experience of sitting in front of a computer screen with its often violent simulation games that deaden the capacity for empathy and moral responsibility.

There are two other characteristics of the cultural commons that have special significance. The first is that they exist in every community and can be fully recognized only by an in-depth description of the cultural patterns that unconsciously influence the embodied experience of preparing and sharing a meal, playing a game, telling a story, writing poetry, marching in an anti-war

demonstration, protesting experimentations and other forms of animal exploitation, working with others in renewing habitats, and so forth. The cultural commons are largely taken-for-granted and thus unrecognized aspects of daily life—and can best be brought to attention through actual participation and ethnographic/phenomenological descriptions rather than through abstract theory and print-based descriptions. The second characteristic that needs to be reiterated, especially in light of the rate of global warming, is that what the industrial culture had to destroy, as Sale put it, are the intergenerational traditions that have smaller adverse impacts on the ecological systems.

Most aspects of the cultural commons in Western countries rely to some degree on what has to be purchased. However, even this small degree of dependence makes a great deal of difference in terms of meeting the criteria of eco-justice. By being more intergenerationally connected, a revitalized cultural commons *reduces* the need for a system of production that has to dispose of vast amounts of toxic wastes (usually in the neighborhoods of the poor and marginalized). It also reduces the need to exploit the resources of Third World cultures and to integrate them into a global market system. As these cultures are able to regenerate their own cultural commons they are able to resist more effectively the West's efforts to colonize them in the name of development, democracy, and modernization—god-words that are based on Western assumptions about individualism, progress, and the messianic drive to impose a consumer-dependent lifestyle on other cultures. The lifestyle that is more oriented toward cultural commons skills and activities of mutual support, and less on consumerism that degrades the environment and thus the prospects of future generations, meets yet another concern of eco-justice advocates. In possessing the skills and participating in the community systems of mutual support, the individual is more likely to resist the market-oriented ideology that equates the exploitation of species and habitats with progress. This characteristic of the cultural commons meets the last criteria of recognizing that natural systems have a right to reproduce themselves as part of the layered nesting of interdependent ecosystems—and not to be reduced to an economic resource.

This list of the ecologically sustainable and morally coherent characteristics of the cultural commons brings out what is missing in most of the educational discourse on how to eliminate discrimination in the areas of class, race, and gender. It also brings into focus the viable alternatives for addressing the estimated one billion lives that exist on one dollar a day, and are mired in the culture of poverty marked by a lack of food security and adequate housing. As global warming accelerates in the next few decades, as the world's oceans become less reliable sources of protein,

and as droughts and severe weather systems contribute to mass migrations of people, the lives of the poor will become more desperate as they expand in number. The double bind of relying upon sources of energy to keep the industrial system expanding (thus accelerating the rate of global warming) will intensify the willingness of corporations to outsource production facilities not only to low-wage regions but also to regions that still have easily accessed sources of energy. As the ecological crisis deepens, and the seemingly unrelenting drive to continue expanding profits in an increasingly stressed world becomes more difficult, it will be the people who continue to occupy the bottom rung of the economic/political/educational hierarchy who will continue to suffer the most.

The irony is that the ancient pathway of human development that still exists in rural and urban communities, and that represents an essential part of a post-industrial alternative, continues to be ignored—even by the few educational theorists who are beginning to recognize the ecological crisis. What now has to be avoided is the endless repetition that there is an ecological crisis and that capitalism is primarily responsible. Thoughtful people already understand the connections between the two phenomena. Instead, advocates of social justice need to explore the pedagogical and curricular implications of how to introduce students, including the already marginalized students, to the life-enhancing possibilities that exist in the cultural commons of their local communities—and that are part of the cultural commons of the dominant culture that protects the rights of various minority cultures. There is a direct connection between the enclosure of the traditions of civil liberties that are the basis of democracy and the growing dominance of corporations, market liberal politicians, religious fundamentalists, and the military establishment that views its mission as protecting the global interests of market liberals. There is also a connection in America between the number of marginalized groups who suffer the most deaths and catastrophic injuries from military actions that result from the logic of economic globalization. Knowledge of how to protest against the various forms of economic and political oppression is also part of the cultural commons—which includes the narratives of past protest movements, strategies that have proved most successful, and even songs and the iconography associated with past peace movements. The current drive to install total surveillance systems of a country's citizens as a defense against terrorism further undermines their civil liberties, and will be used by police to identify the leaders of movements protesting various forms of social injustice—including environmental activists.

Pedagogical and Curricular Implications

The future prospects of the poor and marginalized are inextricably tied to the future prospects of the cultural and environmental commons. With the outsourcing of work, automation that reduces the need for workers, and downsizing in order to improve corporate profits, the prospects of upward mobility that have been the hallmarks of past generations, though unevenly realized, are being rapidly diminished. Given this reality, placing greater emphasis on educational reforms that help to regenerate the cultural commons should not be interpreted as meaning that all students, regardless of social class and racial background, should not acquire the knowledge that will enable them to find meaningful work that supports a basic standard of living. Just as most aspects of the cultural commons require some degree of dependence upon the industrial system of production and consumption, public schools and universities need to ensure that the students at the bottom of economic and social pyramid have the opportunity to learn what is required for careers and employment that are non-exploitive. At the same time, changes need to be introduced at all levels of the educational system that will enable students to learn about the community-centered alternatives that contribute to the transition to a post-industrial future—namely, the cultural commons. In discussing the unique characteristics of a pedagogy and curriculum that introduce students to the ecological and community-sustaining importance of the cultural commons, it is important to keep in mind that we are in a transition phase of cultural development. Thus, the following discussion of pedagogical and curriculum reforms must also be viewed in this light.

If we consider the basic tension between the industrial/consumer-oriented culture and the characteristics of the cultural commons that strengthen mutual support, develop skills and personal talents, and ensure moral reciprocity among all members of the community, it becomes clear what the role of the classroom teacher/professor should be. Instead of promoting the high status forms of knowledge and values that contribute to the further expansion of the industrial/consumer-oriented culture, the role of the classroom teacher and university professor should be that of a mediator who helps students become aware of the fundamental differences between participation in the cultural commons and the culture of industrial production and consumption. Being a mediator requires an understanding of what students are most likely to take-for-granted as they move daily between participation in the two sub-cultures. The pedagogical task is to encourage students to name what would otherwise be taken for granted. Naming taken-for-granted patterns of thinking and behavior, as we learned from both the feminist and civil rights movements, is the first step to making them explicit, which is essential for developing communicative competence. Like the mediator in labor

disputes, the teacher's mediator role precludes giving students the answers about which aspects of the cultural commons and the industrial/consumer-oriented culture need to be rejected or renewed. The techno-scientific basis of the industrial culture has made many important contributions to improving the quality of human life, and now has the potential to help reduce our carbon footprint. Thus, the task of being a mediator should not be reduced to that of an ideologue who has pre-conceived answers, and who enforces the silence about what her/his ideology cannot explain. Similarly, ideology should not guide how the students are to think about their embodied experiences within the cultural and environmental commons.

The initial step in teaching and learning that fits the model of a mediator is to encourage students to describe their embodied/culturally-influenced experiences as they move between the two sub-cultures. There are specific questions that students need to be reminded to ask: Does the experience in a cultural commons activity contribute to the development of personal skills and the discovery of talents? Does it contribute to a sense of community self-sufficiency and mutual support? Does it require exploiting others who are less advantaged? What is its impact on natural systems? Does it contribute to an awareness of what needs to be intergenerationally renewed and of the need to be able to mentor others? Does it lead to different forms of empowerment, such as the ability to exercise communicative competence in resisting further forms of enclosure of skills and patterns of mutual support that result in an increased dependency upon a money economy? What is its ecological footprint? These same questions need to be explored by students as they participate in various aspects of the industrial/consumer-oriented culture.

In examining the experiences between preparing and sharing a meal with others and eating in a fast food outlet; between face-to-face communication and reading; between gardening and being dependent upon industrially prepared food; between participating in one of the creative arts and being a consumer of commercially promoted artistic performances; between developing skills associated with a craft that extends one's talents and purchasing what has been industrially produced (increasingly in a low-wage region of the world), the differences will quickly become apparent. And this awareness of differences, if framed in light of the ecological crisis and the changes resulting from economic globalization, is essential to the recovery of local democracy that has been one of the hallmarks of the diverse cultural commons that have not been based on ideologies and mythologies that have privileged the few over the many.

Another responsibility of the teacher/professor's mediating role is to ensure that students become aware of the narratives that provide an account of various social-justice movements, starting with the earliest beginnings of the traditions of civil liberties in the West--such as habeas corpus, the right to a fair trial by a jury of peers, separation of powers, and an independent judiciary. The narratives that provide an understanding of the labor movements that struggled to achieve safe working conditions, a living wage, and the right of workers to organize politically, should also be part of the curriculum. The feminist movement as well as the civil rights movements also should be part of a commons-oriented curriculum. Again the tensions between the cultural commons and the industrial/consumer-oriented culture that are now being globalized, and that are major contributors to the ecological crises, will inevitably come out—and be a major focus of class discussions.

The ecological crisis, as well as the increasing number of the world's population that is moving from a subsistence existence into one of dire poverty, make it particularly important that the teacher/professor introduce students to the history of different ways in which the cultural commons are being enclosed. The following questions will bring into focus different forms of enclosure: How did the Western philosophers' reliance on unacknowledged culturally-influenced interpretative frameworks (which can also be understood as root metaphors that frame the historically layered process of analogic thinking) contribute to the enclosure of the cultural commons? How has the rise of Western science contributed to the enclosure of local knowledge of healing, agricultural practices, reliance on local materials, and so forth? What role have various religions played in strengthening the cultural commons and, on the other hand, in representing the exploitation of the commons by market forces as carrying out God's plan for those who are to be saved? What were the intellectual influences that marginalized the importance of the workers' skills, their control of the tempo of work and use of technologies? What are the current techno-scientific and market forces that are threatening such things as the diversity of seeds, and local knowledge of how to adapt agricultural practices to the characteristics of local soils and weather patterns?

In addition to introducing, particularly as the students move into the upper grades and onto the university, the various histories of different forms of enclosure, the role of being a mediator also requires that students be introduced to how different cultures have sustained their cultural and environmental commons while at the same time ensuring that their local markets did not dominate the patterns and values of everyday life (W. Sachs, 1992; W. Sachs, 1993). Knowledge of the intergenerational traditions of other cultural approaches to the cultural and environmental commons

will enable students to gain a better perspective on whether the current myth that equates the Western scientific-technological and market driven approaches to creating greater dependence on what is industrially produced and consumed should be the basis of development in other cultures. There is a need to enable a large percentage of the world's population that is mired in poverty to obtain a decent standard of living and to enable them to experience more than a life of drudgery and stunted development. The critical question is whether the further enclosure of the diversity of the world's cultural commons will achieve this end.

To this point, the discussion of the teacher/professor's role as a mediator between the students' embodied/culturally-nested experiences in the local cultural commons and in the workplace and shopping malls of the industrial culture has been general in nature. It is now necessary to address how to engage students from a variety of backgrounds that make them especially vulnerable to the prejudices currently perpetuated by the educational system's emphasis on the high-status knowledge that perpetuates poverty and deepens the ecological crisis. As mentioned earlier, every culture has its distinct intergenerational traditions of preferred foods, approaches to the creative arts, healing practices, ways of understanding moral reciprocity, craft knowledge, narratives of past achievements and leaders, mentors in various arts and crafts, understanding of what constitutes social justice, and so forth. For example, in the largely Hispanic community in San Francisco one will find that many of the walls of buildings that previously were used to advertise cigarettes and liquor have been reclaimed as part of the cultural commons. Giant murals now depict past struggles, important cultural leaders, and visions of what the future should hold for Hispanic communities. The same reclaiming of this part of the cultural commons can be found in Detroit and other major cities. Other examples of the cultural commons can be seen in the community gardens where traditional foods are grown, in the local poets, artists, writers, and musicians who are willing mentors of the community's youth. There are elders and people who take responsibility for keeping alive the oral history of the group, just as there are living traditions of how assist the especially vulnerable to the problems of extreme poverty, old age, and hopelessness. The nature of these cultural commons varies from community to community, from ethnic group to ethnic group. As the cultural commons of these ethnic and marginalized groups are nested in the cultural commons of the larger society, with its traditions of civil liberties, of achieving legal redress of discriminatory practices, and of effecting changes through an admittedly flawed democratic process, it is important

that these traditions also be recognized as essential aspects of what marginalized students should claim as their cultural commons.

The starting point in a commons-oriented curriculum is to have students conduct a survey of their local cultural commons, as well as the aspects of the larger cultural commons that they have a right (in spite of past exclusions) to participate in. The survey should involve learning who the elders and mentors are, who the keepers of the community memory are, what forms of cultural commons activities exist—such as playing chess, painting, writing poetry, musical performances, gardening, working with wood and metal, volunteerism, and political action groups. In a word, the survey should cover the activities and relationships within the community that are less reliant upon a money economy—and that lead to the development of skills and interests that contribute to a less damaging ecological footprint.

After the survey has been undertaken, the process of learning to make explicit the differences between their embodied/culturally nested experiences with different activities within the cultural commons and in the world of industrial work and consumerism can begin. This process of learning to recognize differences that otherwise are taken-for-granted as the students move between the two sub-cultures, and to name them, provides the linguistic and conceptual basis for the communicative competence necessary for resisting further forms of enclosure by market and scientific/technological forces. Resistance may take the form of overcoming the silences about the nature and importance of the local cultural commons being perpetuated by public schools and universities. It also may take the form of resisting the false promises of developers who want to attract the large commercial enterprises that will eliminate the small shop keepers and service providers, as well as the open physical spaces that enable members of the community to connect with the natural world, to have community gardens and places for children and others to play and to escape the pressures of the media and the temptations of the shopping malls. Communicative competence is also necessary to giving voice to what aspects of the techno-scientific/industrial culture need to be abandoned as ecologically unsustainable—and which aspects can make a contribution to improving the lives of people while still having a smaller ecological footprint.

One of the failures of the educational theorists who have been writing about the need for educational reforms that address the seemingly intractable problems of class, race, and gender discrimination is that they have continued to use the metaphors of *individualism*, *progress*, *emancipation*, *intelligence*, *tradition*, and so forth, that carry forward the analogs formed in the

distant past by theorists who ignored cultural differences, the nature and importance of the cultural and environmental commons, and the existence of ecological limits. In effect, the arguments for addressing the issues of race, class, and gender have been based on a metaphorical language that has been frozen over time, and that continues to put out of focus the intergenerational relationships and knowledge that provide alternatives to the form of individualism that is dependent upon consumerism to meet daily needs. Reliance upon the metaphorical language that gave conceptual legitimacy to the rise and current globalization of an industrial/consumer dependent lifestyle can also be understood as yet another unrecognized example of how language continues to colonize the present by past ways of understanding (Bowers, 2008).

Learning to participate in what remains of the local cultural commons, and in developing new skills and non-monetized relationships will have the effect of expanding how intelligence is understood—from that of an individual attribute that is subjectively centered to understanding that intelligence is communal, intergenerational, and enhanced through participation with others, and with the environment. As the communal and intergenerational nature of intelligence may be the source of prejudices and environmentally destructive lifestyles, it is important for teachers/professors help students recognize the forms of intelligence that are destructive of human possibilities, as well as the ways of thinking that are informed by today's understanding of social and ecojustice. This has been part of the curriculum that addresses various forms of discriminatory relationships and patterns of thinking. Too often this process of clarification has, at the same time, reinforced the idea that critical thinking is the expression of individual autonomy. Making the students' culturally influenced embodied experiences in the local cultural and environmental commons an integral part of the curriculum will help to reconstitute how individualism is understood—from that of being autonomous and essentially alone to recognizing that one of the unique characteristics of life is being in relationships that constantly lead to a redefinition of self that reflect changes in the social and environmental context. *Tradition*, which still carries forward the reductionist thinking of the Enlightenment writers, will also cease to be an abstraction that misrepresents the complexity of daily experience in both the cultural commons and in the industrial/consumer oriented culture. Instead of thinking that change always is a progressive force, the embodied experiences within the cultural commons will lead to a more complex and critically informed understanding of which traditions need to be carried forward and renewed, and which traditions need to be rejected as environmentally destructive and as sources of injustice.

One of the metaphors that is in special need of being associated with new analogs is *environment*, which is now understood either as the background within which human experience takes place or as an exploitable resource. If the teacher/professor explains, and has students test out in terms of their own embodied experiences, how different environments can be understood as ecologies—and that ecologies include both the interactions and interdependencies within natural systems as well as within cultures (and the interdependencies between culture and nature) students are more likely to be aware of the different ways in which their activities impact the sustainable characteristics of natural systems. Students still rooted in the beliefs of their indigenous heritage already possess this awareness, but students who have been uprooted from their cultural traditions, which may not have been ecologically centered in the first place, will need to develop this awareness. And this awareness will be essential to slowing the rate of environmental degradation that will impact them the hardest in coming years.

The challenge now is for the proponents of educational reforms that address the issues of class, race, and gender to recognize that an approach to achieving social justice for the millions of marginalized students cannot be based on the same deep cultural assumptions that created the industrial/consumer-oriented culture that is largely responsible for the injustices that continue to stunt the potential of students. This challenge will be particularly difficult to address as few of today's proponents of educational reform have given attention to how language helps to organize their patterns of thinking in ways that reproduce the silences and cultural assumptions of past theorists who contributed to today's double-bind patterns of thinking. The problem is that the double-bind thinking of these self-proclaimed social justice theorists continues to equate progress with achieving greater equality of opportunity for marginalized groups to live a middle class consumer dependent lifestyle-- while the world is moving closer to the ecological tipping point scientists are warning about.

References

- Bowers, C. A. (2007) Handbook for Faculty Workshops on How to Introduce Cultural Commons and Ecojustice Issues into Their Courses. Eugene, OR.: Eco-Justice Press.
<http://cabowers.net>.

- _____. (2008) Toward a Post-Industrial Consciousness: Understanding the Linguistic Basis of Ecologically Sustainable Educational Reforms. Eugene, OR.: Eco-Justice Press,
<http://cabowers.net>
- Freire, Paulo. (1974) Pedagogy of the Oppressed. New York: Seabury Press.
- Giroux, Henry. (1988) Teachers as Intellectuals: Toward a Critical Pedagogy of Learning. Granby, MA.: Bergin & Garvey.
- Gruenewald, David. (June, 2008) "The Best of Both Worlds: A Critical Pedagogy of Place"
Environmental Education Research. Vol 14, No. 3. pp. 308-324.
- Gruenewald, David, and Gregory Smith (editors, 2008,) Place-Based Education in the Global Age.
 New York: Lawrence Erlbaum.
- McLaren, Peter. 2005) Capitalists and Conquerors: A Critical Pedagogy Against Empire.
 Lanham, Maryland: Rowman & Littlefield.
- Moyers, B. (2007) Bill Moyer's journal, August 3, 2007. Available at
www.pbs.org/moyers/journal/08032007/transcripts1.html.
- Polanyi, Karl. (2001 edition) The Great Transformation. Boston: Beacon Press.
- Sachs, Wolfgang. (editor) (1992) The Development Dictionary: A Guide to Knowledge as Power.
 London: Zed Books.
- _____. (editor, 1993) Global Ecology: The New Arena of Political Conflict. London: Zed
 Books.
- Sale, Kirkpatrick. (1995) Rebels Against The Future: The Luddites and Their War on the Industrial
 Revolution. Reading, MA.: Addison-Wesley.
- Shiva, Vandana (1996) Protecting Our Biological and Intellectual Heritage in the Age
 of Biopiracy. New Delhi: Research Foundation for Science, Technology and Natural
 Resource Policy.

As the social justice issues of class, race, and gender have been the dominant concern of many educational studies faculty over the last decades, it is now time to ask whether the recent evidence of global warming, changes in the chemistry of the world's oceans, and the increasing shortage of potable water should lead to developing a new strategy for ameliorating these long standing sources of injustice and poverty. Given the amount of time devoted to discussing class, race, and gender issues, as well as the number of books that focus on these issues, little has actually been achieved in affecting the systemic changes required for marginalized social groups to

participate on more equal terms in the public arenas of politics, economics, and educational opportunities. Corporations in the United States continue to shape governmental policies that deepen the economic plight of marginalized groups that live at the bottom of the wage scale, while raising the cost of drugs and medical care beyond what they can afford. Overall, the democratic process itself has become degraded by corporate and other special interests to the point where millions of people continue to be mired in poverty and hopelessness.

The recent acceleration of economic globalization and the deepening of the ecological crises that are now impacting people's daily lives suggest that a radical rethinking of how to address social justice issues is needed. The growing awareness of these global developments, which includes the near total collapse of the free market system, a weakened labor movement and rapid rise in unemployment, the decline in the size of the middle class, and a need to change the ecological impact of all citizens (even that of the poor who have not been educated about how to live less environmentally destructive lives), means that the old assumptions about achieving a more socially just society have to be re-examined.

Social justice thinking has largely been framed in terms of middle class assumptions about individualism, progress, a world of unlimited exploitable natural resources, and education as a source of individual empowerment. The ultimate goal of achieving greater social justice for marginalized groups has been to enable them to participate on equal terms in the areas of work, politics, and the culture of consumerism. The guiding priorities of ecojustice-based educational reforms are, on the other hand, both more global in terms of analysis and accountability, and more local in terms of educational strategies that reverse the process of deskilling that is part of the destruction of community systems of mutual support that began with the rise of the techno-scientific based industrial culture. These priorities can be summarized as eliminating environmental racism, resisting the forces that are colonizing Third World cultures and exploiting their natural resources, revitalizing the local cultural and environmental commons that are sites of resistance to the expansion of the industrial/consumer dependent lifestyle, adopting a lifestyle that does not degrade the prospects of future generations, and developing an ecological consciousness that respects of the right of natural systems to renew themselves.

Basing daily life on ecojustice criteria means taking account of the impact of the consumer dependent lifestyle that is being promoted in our public schools and universities by asking whether it is largely responsible for the economic and cultural colonization of Third World societies, as well as

the environmental racism that exposes minority groups to the toxic chemicals that the industrial/consumer oriented culture relies upon. Ecojustice thinking also brings into focus the need to consider the existing community-centered alternatives to the deskilled individual lifestyle that is increasingly dependent upon consumerism—even as the sources of employment become more uncertain because of outsourcing to low wage regions of the world, and the drive to increase profits by replacing workers with computer driven machines. As the life-sustaining ecosystems become more degraded, there is also the question of whether the current industrial/consumer oriented lifestyle that is taken-for-granted by many educational advocates of social justice is undermining the prospects of future generations. Other concerns of ecojustice thinking include the need to undertake educational reforms that address our responsibility for leaving future generations with sustainable ecosystems, which also means recognizing the right of non-human forms of life to reproduce themselves in sustainable ways.

While the environment is being degraded to the point where the scarcity of protein, water, and energy is driving up prices, thus further impoverishing the already poor, the advertising industry is spending billions of dollars a year in order to perpetuate the public's addiction to consuming the latest fashions, technologies, and forms of entertainment. Public awareness of the environmental changes that scientists are warning about is further obfuscated by the big box stores and shopping malls that stock their shelves with a super abundance of consumer products—thus further perpetuating the illusion of plentitude. Glitz, easy credit and an indifference to the dangers of going deep into debt, are just part of the culture that now dominates the majority of the people's lives—that is, those who have not lost their well paying jobs, health and retirement benefits, and are now reduced to a minimum wage lifestyle. The poor and marginalized-- ranging from single mothers, urban minority youth, migrant farm workers, and a wide range of people whose skin color and lack of educational background disqualifies them from other than menial forms of labor in industrial food outlets and other low paying service industry jobs, are too focused on meeting the most basic needs of food and shelter to be aware that there are community-centered alternatives to the industrial/consumer lifestyle they have been excluded from participating in. As Barbara Ehrenreich pointed out in a recent interview with Bill Moyers, the poor live so close to the edge that going without pay for the couple of weeks it takes to find a more high-paying job is unthinkable. In effect, poverty restricts even this most basic option that the middle class can take for granted.

The central priorities of ecojustice advocates do not have their roots in abstract theory. Rather, the traditions of intergenerational knowledge and patterns of mutual support that enabled people to live in ways where market forces do not dominate everyday life have been around since the beginning of human history. They are still present in every community across North America and in other parts of the world. Historically, these traditions were known as the commons; that is, what is freely shared by the members of the community-- which also includes local decision making. The norms that governed the cultural and environmental commons were passed along orally and differed from culture to culture. The Romans were the first to establish a written record of the commons, which they identified as the local streams, woods, fields, animals, and so forth. The cultural commons, which include the intergenerational knowledge and skills necessary for gathering, preparing, and sharing food, the medicinal properties of plants and where to find them, narratives of courage and of hubris, the rules that governed community members who violated local norms of justice, the sharing of technological skills and craft knowledge, the mythologies and prejudices that regulated who had privileged positions in the community, and so forth, have only recently been identified as part of the commons. The cultural commons also include the voluntary associations that are sources of mutual support within the community, as well as groups that come to together to promote agendas that range from providing safe bicycle lanes within the community to supporting the peace efforts of national politicians and providing aid to people in other parts of the world that have experienced a natural disaster. Unfortunately, the intergenerational sources of empowerment and community self-sufficiency are now being threatened by the market-liberal traditions of private property, anomic individualism, the expansion of the industrial approach to production and consumption, the growing hegemony of the capitalist ethos, and the rise of corporate power.

While the causes of the economic crises that is spreading around the world are systemic as well as a function of human greed, it is important to note that the main focus of the media, politicians, and public is on regaining the jobs that will enable people to return to their previous consumer dependent lifestyles. That is, there is little discussion of community-centered alternatives that are here being referred to as the cultural commons—and thus little discussion of how the political economy of the local cultural commons can become part of the basis for meeting the daily needs for food, housing, medical care, education. If attention were to be given to the lifestyles of people who are more fully engaged in their local cultural commons it would become clearer that they rely less upon a money economy and thus are less exposed to the exploitive forces that are inherent

in the industrial governed market place. The voluntary simplicity movement has demonstrated that the political economy of the cultural and environmental commons leads to a different understanding of wealth—on that takes account of skills, mutual support systems, and community well-being. Yet, it is important to recognize that there is still a need for meaningful forms of work that contribute to a living wage. The combination of local decision making, which is a key feature of many local cultural commons, and the spread of such developments as micro-banks and the pooling of local resources for housing projects and other community infrastructure needs, are also evidence of the need to combine thinking about local self-sufficiency and ecological sustainability.

The relationships between the local cultural commons found in every community today and the industrial/consumer culture have not been mutually supportive. Indeed, the people who promote the expansion of the industrial/consumer dependent lifestyle, and thus the accumulation of capital, view the largely non-monetized cultural commons as potential markets to be exploited. Their goal is to replace intergenerational skills and patterns of mutual support with new technologies that must be privately owned and with expert systems that represent as sources of backwardness the traditional values and forms of knowledge--such as civil liberties, patterns of returning labor, mentoring, knowledge of how to live lightly on the land, etc. that have been the strength of many cultural commons. At the time the environmental commons in rural England were being transformed during the early stages of the Industrial Revolution, the process of limiting free access and use on a none monetized basis, as well as overturning of local decision making, was referred to as “enclosure”. That is, the enclosure of the environmental commons involved the introduction of private ownership and integration into a money economy, which often led to decision making being transferred to distant owners—and later to corporations that made increasing profits the primary criteria for exploiting the natural environment. Now that we can recognize the cultural beliefs and practices, which now include cyberspace, as part of the cultural commons that enable community members to be less dependent upon a money economy, it is possible to recognize the many ways in which different aspects of the local cultural commons are being enclosed by today’s market forces—as well as by ideologies, technologies, prejudices, and silences. Public schools and universities continue to be complicit in reinforcing the cultural assumptions that further undermine the viability of the cultural commons even as environmental scientists are working to conserve what remains of the environmental commons. Many social justice oriented faculty continue to reinforce many of the same cultural assumptions that gave conceptual direction and moral legitimacy to the

industrial/consumer dependent lifestyle even as they criticize the exploitive nature of capitalism. These shared assumptions include the idea of the autonomous individual, the progressive nature of change, an anthropocentric view of human/nature relationships, and the drive to impose these assumptions on other cultures under the rubric of “development”, as well as the same silences about the local community sources of self-sufficiency and mutual support. (Sachs,1992).

While the diversity of the world’s cultural commons currently represent sites of resistance to economic globalization, it is important to avoid romanticizing the cultural commons. In many cultures, including the local communities across North America, the cultural commons also include narratives and traditions that perpetuate different forms of discrimination and economic exploitation. That is, the stoning to death of the woman who seeks to marry outside of her tribe, the market liberal ideology that equates social progress with an economy that makes survival of the fittest the ultimate test of individual success, and the various forms of racial, class, and gender prejudices also have their roots in the traditions of some cultural commons. Ironically, these non-monetized traditional beliefs and practices (which have dire economic and social consequences for those who are the subjects of discrimination) were and still are generally sustained in communities which may also possess networks of mutual support that reduce reliance on consumerism—and that have a smaller ecological footprint.

The local cultural commons should not be regenerated and supported just because they represent alternatives to the industrial/consumer oriented culture that is being globalized--and that put at further risk the possibility of achieving a sustainable future. Rather, the different traditions of the cultural commons need to be examined in terms of whether they support traditions of civil liberties, moral reciprocity in the treatment of all members of the community as deserving the right to an equal opportunity to develop their personal talents and to making their contribution to regenerating the life supporting cultural commons. Challenging the traditions of the cultural commons that are sources of exploitation and marginalization should also be part of a more global and ecologically informed ecojustice pedagogy.

As pointed out in the online [Handbook for Faculty Workshops on How to Introduce Cultural Commons and Ecojustice Issues Into Their Courses](#), (2007), the unique characteristics of the cultural and environmental commons require a radically different approach than the current emphasis on making individual emancipation, promoting the students’ construction of their own knowledge, and making higher test scores the primary focus of educational reform. There are a number of unique

characteristics of the cultural commons that an ecojustice pedagogy needs to take into account. The first is that most of the traditions that members of a community participate in on a daily basis are taken-for-granted, such as the tradition of English speakers using the subject-verb-object pattern of oral and written communication, assuming they are innocent until proven guilty before a jury of peers, and that language is a conduit in a sender/receiver process of communication—to cite just a few of the taken-for-granted patterns of daily life. The taken-for-granted status of most aspects of the local cultural commons is important for several reasons. In being part of tacit, contextual, and largely taken-for-granted experience, they are mostly excluded from the curriculum of public schools and universities. And in being excluded from the curriculum at all levels of the formal education process, and in being largely taken-for-granted by members of the community who are at the same time being constantly indoctrinated with the message that change is essential to progress, the loss (that is, enclosure) of different traditions of the cultural commons go unnoticed—except for the people who are consciously carrying forward one of the traditions of the cultural commons, such as weaving, protecting civil liberties, utilizing craft knowledge and skill, participating in local theater, and so forth.

The taken for granted nature of the individual's embodied experience of the cultural commons, which may include racist and gender forms of discrimination, is just one of the characteristics of daily experience that requires a different approach to teaching and learning than is found in current approaches that are based on many of the same cultural assumptions (or what I have referred to elsewhere as root metaphors) that underlie the industrial/consumer oriented culture that is overshooting the life sustaining capacity of natural systems. The emphasis on explicit forms of knowledge, which is reinforced by reliance on print based knowledge, testing, and supposedly objective knowledge, marginalizes the importance of helping students recognize the difference between their experiences in the cultural commons and in the market/consumer oriented culture.

Another bias in current approaches to education that can be traced back to Plato's argument that "pure thinking" leads to universal truths that are more reliable than thinking grounded in embodied/culturally influenced experiences. The Western theorists who followed in this tradition of assuming that abstract words are a more accurate source of knowledge also were unaware of nature and ecological importance of their local cultural commons. Indeed, they held in contempt the forms of face-to-face, intergenerationally shared knowledge and skill, and relegated them to low status knowledge. This tradition is still evident in the thinking of current educational reformers who

assume that words such as individualism, democracy, tradition (which reproduces the Enlightenment assumptions of being a source of backwardness and special privileges), intelligence, progress, and so forth, have a universal meaning. These educational reformers continue to ignore how the analogs that frame the meaning of these metaphors carry forward the misconceptions of earlier thinkers (P. Freire, 1974; H. Giroux, 1988; D. Gruenewald, 2008). This pattern of thinking further marginalizes an awareness of the embodied experiences in the different community traditions that are being referred to here as part of the cultural commons. One of the consequences of the silences about the nature and complexity of the cultural commons, as well as the constant reminder that traditions are impediments to progress, which are being reinforced in most areas of the public school and university curriculum, is that students enter adulthood without an awareness of the different economic and ideological forces that are enclosing what remains of the cultural commons. For most of them, the industrial/consumer culture is the arena in which they will personally succeed or fail—and the outcome of their individual quest remains disconnected in their thinking from the rapid rate of degradation of the world's ecosystems.

There is now a major body of writing that addresses both the various ways in which public schools reproduce the culture's traditions of class and other forms of discrimination, as well as the reforms that need to be undertaken in order to achieve a more equitable society. Criticism of prejudicial language, silences in the curriculum, preconceptions about the potential (or lack thereof) of already marginalized students, tracking and other systemic forms of discrimination, have been the mainstays of educational foundation and educational studies courses for the past several decades. While there have been some social justice gains, particularly in the areas of race and gender, there remains much to be done—especially since the changes resulting from economic globalization and the global warming will have the greatest impact on minority groups whose economic gains have been, at best, both minimal and fragile. Critiques of the beliefs and values that have kept people of color, women, and other people restricted by other class barriers have actually been critiques of the reactionary traditions of found within some cultural commons. Unfortunately, the theories that framed these critiques were not informed about the complex nature of the cultural commons. Indeed, the phrase “cultural commons” has not been used (D. Gruenewald and G. Smith, 2008). The main consequence of this lack of understanding is that the aspects of the cultural commons that hold out the prospect of finding community-centered alternatives to the negative impact of the industrial

culture have not been part of the well intended efforts to use the schools to eliminate the sources of poverty and injustice.

The use of a sociological interpretative framework seemed ideally suited to bringing into focus economic, political, and educational inequities. Unfortunately, it has led to ignoring the questions that would have arisen if a more anthropologically informed interpretative framework had been relied upon. Awareness of a deep understanding of cultural differences could easily have brought into question how notions of individual freedom and equality could be reconciled with the importance that has been given in recent years to avoiding cultural colonization. For example, the Western ideal of individual freedom and the diversity of non-Western cultures do not easily fit together. Another limitation of the sociological interpretative framework is that it keeps the focus of analysis and recommendations for reform on human to human relationships, with the human/nature relationships being ignored. The evidence for this claim can easily be substantiated by reading the most influential educational writers who have influenced how the analysis of class, race, and gender has been framed—writers such as Samuel Bowles, Herb Gintis, Michael Apple, Henry Giroux, and Peter McLaren. Recently Bowles and Gintis have been writing about the commons, and McLaren has now turned attention to explaining how Marxism can guide educational reforms that address issues of sustainability (P, McLaren, 2005). The key point is that today's educational discourse on class, race, and gender continues to ignore, with only a few exceptions, the implications of the ecological crises for the very social groups they want to emancipate.

The use of the cultural commons as the conceptual framework for analyzing the various forms of discrimination, as well as for guiding educational reforms, has several advantages that a sociological framework lacks. To reiterate: the cultural commons represent all of the forms of knowledge, values, practices, and relationships that have been handed down over generations that have been the basis of individual and community self-sufficiency—and that have enabled members of the community to be less dependent upon a money economy. While the previous discussion of the reactionary and, in some cases, horrific practices of some of the world's cultural commons needs to be kept in mind, there are other characteristics of self-sufficiency that existed prior to what Karl Polanyi called the “Great Transformation” when the emergence of the industrial system of production led to the enclosure of the environmental commons (K. Polanyi, 2002 edition). In Rebels Against the Future: The Luddites and Their War on the Industrial Revolution (1995) Kirkpatrick

Sale summed up how the survival and global expansion of the industrial system of production and consumption depended upon the enclosure of the cultural commons. As he put it,

All that ‘community’ implies—self-sufficiency, mutual aid, morality in the market place, stubborn tradition, regulation by custom, organic knowledge instead of mechanistic science—had to be steadily and systematically disrupted and displaced. All the practices that kept the individual from being a consumer had to be done away with so that the cogs and wheels of an unfettered machine called the ‘economy’ could operate with interference, influenced merely by invisible hands and inevitable balances” p. 38.

Sale does not refer to the community traditions of self sufficiency as the cultural commons, but he accurately makes the point that the industrial/consumer-dependent culture requires the destruction of the different forms of intergenerational knowledge, skills and mutually supportive relationships that enabled people to live less money and thus less consumer dependent lives. In effect, he is describing how the success of the industrial system of production and consumption required the destruction of the local cultural and environmental commons. What is ironic is that the kind of individual required by the industrial/consumer-dependent culture is the autonomous individual being promoted by many of today’s educational reformers. It is also important to note that the lack of intergenerational knowledge that reduces dependence upon consumerism contributes to an important aspect of poverty that is seldom discussed—even though it leads to the forms of poverty that threaten the individual’s health and leads to other forms of insecurity.

Unlike the limited conceptual possibilities of a sociological interpretative framework and vocabulary, the cultural commons is the phrase that encompasses the traditions of community that are nested in larger social and ecological systems. These traditions, as mentioned earlier, range from local approaches to growing and preparing food as alternatives to industrialized system that is so damaging to the ecosystems to intergenerational approaches to healing that differ from the highly monetized and industrial approaches of today’s medicine (which are increasingly becoming dependent upon patenting indigenous knowledge of the medicinal properties of plants) (V, Shiva, 1996). Depending upon the local communities and cultural traditions, the intergenerational knowledge also includes the creative arts passed on through mentoring that differ from the star system of commercialized music and visual arts, as well as narratives of the labor, feminist, and civil rights movements rather than the mind-numbing television sit-coms that serve to hook viewers to the multi-billion advertising industry. The traditions of civil rights that go back to the Magna

Carta of 1215 are also part of the cultural commons. Unfortunately, they are now being enclosed by the growing alliance between market liberal dominated governments, corporations, universities, and the military establishment. A more fine grained analysis of the differences between the cultural commons and the industrial/consumer-dependent culture that is now being globalized would involve a discussion of the differences between community mentors and university trained experts who have an ego and economic investment in imposing theory-based solutions on people's lives, between face-to-face and computer mediated communication, between community traditions of reciprocity where work is returned and work that has to be paid for, between developing personal interests and skills and being a consumer of other people's talents, as well as between the embodied experiences of being in the natural environment and the embodied experience of sitting in front of a computer screen with its often violent simulation games that deaden the capacity for empathy and moral responsibility.

There are two other characteristics of the cultural commons that have special significance. The first is that they exist in every community and can only be fully recognized by an in-depth description of the cultural patterns that unconsciously influence the embodied experience of preparing and sharing a meal, playing a game, telling a story, writing poetry, marching in an anti-war demonstration, protesting experimentations and other forms of animal exploitation, working with others in renewing habitats, and so forth. The cultural commons are largely a taken for granted and thus an unrecognized aspect of daily life—and can best be brought to attention through actual participation and ethnographic/phenomenological descriptions rather than through abstract theory and print-based descriptions. The second characteristic that needs to be reiterated, especially in light of the rate of global warming, is that what the industrial culture had to destroy, as Sale put it, are the intergenerational traditions that have smaller adverse impact on the ecological systems that all forms of life depends upon.

Most aspects of the cultural commons in Western countries rely to some degree on what has to be purchased. However, even this small degree of dependence makes a great deal of difference in terms of meeting the criteria of eco-justice. By being more intergenerationally connected, a revitalized cultural commons reduces the need for a system of production that has to dispose of vast amounts of toxic wastes (usually in the neighborhoods of the poor and marginalized). It also reduces the need to exploit the resources of Third World cultures and to integrate them into a global market system. As these cultures are able to regenerate their own cultural commons they are able to resist

more effectively the West's efforts to colonize them in the name of development, democracy, and modernization—god-words that are based on Western assumptions about individualism, progress, and the messianic drive to impose a consumer dependent lifestyle on other cultures. The lifestyle that is more oriented toward cultural commons skills and activities of mutual support, and less on consumerism that is degrading the environment and thus the prospects of future generations, meets yet another concern of eco-justice advocates. In possessing the skills and participating in the community systems of mutual support, the individual is more likely to resist the market-oriented ideology that equates the exploitation of species and habitats with progress. This characteristic of the cultural commons meets the last criteria of recognizing that natural systems have a right to reproduce themselves as part of the layered nesting of interdependent ecosystems—and not to be reduced to an economic resource.

This list of the ecologically sustainable and morally coherent characteristics of the cultural commons brings out what is missing in most of the educational discourse on how to eliminate discrimination in the areas of class, race, and gender. It also brings into focus the viable alternatives for addressing the estimated one billion lives that exist on one dollar a day—and are mired in the culture of poverty marked by a lack of food security and adequate housing. As global warming accelerates in the next few decades, as the world's oceans become less reliable sources of protein, and as droughts and severe weather systems contribute to mass migrations of people, the lives of the poor will become more desperate as they expand in number. The double bind of relying upon sources of energy to keep the industrial system expanding (thus accelerating the rate of global warming) will intensify the willingness of corporations to outsource production facilities not only to low wage regions but to regions that still have easily accessed sources of energy. As the ecological crises deepens, and the seemingly unrelenting drive to continue expanding profits in an increasingly stressed world becomes more difficult, it will be the people who continue to occupy the bottom rung of the economic/political/educational hierarchy who will continue to suffer the most.

The irony is that the ancient pathway of human development that still exists in rural and urban communities, and that represents an essential part of a post-industrial alternative, continues to be ignored—even by the few educational theorists who are beginning to recognize the ecological crises. What now has to be avoided is the endless repetition that there is an ecological crises and that capitalism is primarily responsible. Thoughtful people already understand the connections between the two phenomena. Instead, advocates of social justice need to explore the pedagogical and

curricular implications of how to introduce students, including the already marginalized students, to the life enhancing possibilities that exist in the cultural commons of their local communities—and that are part of the cultural commons of the dominant culture that protect the rights of various minority cultures. There is a direct connection between the enclosure of the traditions of civil liberties that are the basis of democracy and the growing dominance of corporations, market liberal politicians, religious fundamentalists, and the military establishment that views its mission as protecting the global interests of market liberals. There is also a connection in America between the number of marginalized groups who suffer the most deaths and catastrophic injuries from military actions that result from the logic of economic globalization. Knowledge of how to protest against the various forms of economic and political oppression is also part of the cultural commons—which includes the narratives of past protest movements, strategies that have proven most successful, and even songs and the iconography associated with past peace movements. The current drive to install total surveillance systems of a country's citizens as a defense against terrorism further undermines their civil liberties, and will be used by police to identify the leaders of movements protesting various forms of social injustice—including environmental activists.

Pedagogical and Curricular Implications

The future prospects of the poor and marginalized are inextricably tied to the future prospects of the cultural and environmental commons. With the outsourcing of work, automation that reduces the need for workers, and downsizing in order to improve corporate profits, the prospects of upward mobility that has been the hallmark of past generations, though unevenly realized, are being rapidly diminished. Given this reality, placing greater emphasis on educational reforms that help to regenerate the cultural commons should not be interpreted as meaning that all students, regardless of social class and racial background, should not acquire the knowledge that will enable them to find work that is meaningful and that supports a basic standard of living. Just as most aspects of the cultural commons require some degree of dependence upon the industrial system of production and consumption, public schools and universities need to ensure that the students at the bottom of economic and social pyramid have the opportunity to learn what is required for careers and employment that are non-exploitive. At the same time, changes need to be introduced at all levels of the educational system that will enable students to learn about the community-centered alternatives that contribute to the transition to a post-industrial future—namely, the cultural commons. In discussing the unique characteristics of a pedagogy and curriculum that introduce students to the

ecological and community sustaining importance of the cultural commons, it is important to keep in mind that we are in a transition phase of cultural development. Thus, the following discussion of pedagogical and curriculum reforms must also be viewed in this light.

If we consider the basic tension between the industrial/consumer-oriented culture and the characteristics of the cultural commons that strengthen mutual support, the development of skills and personal talents, and ensures moral reciprocity among all members of the community, it becomes clear what the role of the classroom teacher/professor should be. Instead of promoting the high status forms of knowledge and values that contribute to the further expansion of the industrial/consumer oriented culture, the role of the classroom teacher and university professor should be that of a mediator who helps students become aware of the fundamental differences between participation in the cultural commons and the culture of industrial production and consumption. Being a mediator requires an understanding of what students are most likely to take-for-granted as they move daily between participation in the two sub-cultures. The pedagogical task is to encourage students to name what would otherwise be taken for granted. Naming taken-for-granted patterns of thinking and behavior, as we learned from both the feminist and civil rights movements, is the first step to making them explicit--which is essential for developing communicative competence. Like the mediator in labor disputes, the teacher's mediator role precludes giving students the answers about which aspects of the cultural commons as well as the industrial/consumer-oriented culture that need to be rejected or renewed. The techno-scientific basis of the industrial culture has made many important contributions to improving the quality of human life, and now has the potential to help reduce our carbon footprint. Thus, the task of being a mediator should not be reduced to that of an ideologue who has pre-conceived answers, and who enforces the silence about what her/his ideology cannot explain. Similarly, ideology should not guide how the students are to think about their embodied experiences within the cultural and environmental commons.

The initial step in teaching and learning that fits the model of a mediator is to encourage students to describe their embodied/culturally influenced experience as they move between the two sub-cultures. There are specific questions that students need to be reminded to ask: Does the experience in a cultural commons activity contribute to the development of personal skills and the discovery of talents? Does it contribute to a sense of community self-sufficiency and mutual support? Does it require exploiting others who are less advantaged? What is its impact on natural

systems? Does it contribute to an awareness of what needs to be intergenerationally renewed and of the need to be able to mentor others? Does it lead to different forms of empowerment, such as the ability to exercise communicative competence in resisting further forms of enclosure of skills and patterns of mutual support that result in an increased dependency upon a money economy? What is its ecological footprint? These same questions need to be explored by students as they participate in various aspects of the industrial/consumer-oriented culture.

Examining the differences between preparing and sharing a meal with others and eating in a fast food outlet, between face-to-face communication and reading, between gardening and being dependent upon industrially prepared food, between participating in one of the creative arts and being a consumer of commercially promoted artistic performances, between developing skills associated with a craft that extends one's talents and purchasing what has been industrially produced (increasingly in a low-wage region of the world) will quickly become apparent. And this awareness of differences, if framed in light of the ecological crises and the changes resulting from economic globalization, is essential to the recovery of local democracy that has been one of the hallmarks of the diverse cultural commons that have not been based on ideologies and mythologies that have privileged the few over the many.

Another responsibility of the teacher/professor's mediating role is to ensure that students become aware of the narratives that provide an account of various social justice movements—starting with the earliest beginnings of the traditions of civil liberties in the West—such as habeas corpus, the right to a fair trial by a jury of peers, the franchise, separation of powers, and an independent judiciary. The narratives that provide an understanding of the labor movements that struggled to achieve safe working conditions, a living wage, and the right of workers to organize politically, should also be part of the curriculum. The feminist as well as the civil rights movements also should be part of a commons-oriented curriculum. Again the tensions between the cultural commons and the industrial/consumer-oriented culture that are now being globalized, and that are major contributors to the ecological crises, will inevitably come out—and be a major focus of class discussions.

The ecological crises, as well as the increasing number of the world's population that is moving from a subsistence existence into one of dire poverty, make it particularly important that the teacher/professor introduce students to the history of different ways in which the cultural commons are being enclosed. The following questions will bring into focus different forms of enclosure: How

did the Western philosophers' reliance on unacknowledged culturally influenced interpretative frameworks (which can also be understood as root metaphors that frame the historically layered process of analogic thinking) contribute to the enclosure of the cultural commons? How has the rise of Western science contributed to the enclosure of local knowledge of healing, agricultural practices, reliance on local materials, and so forth? What role have various religions played in strengthening the cultural commons and, on the other hand, in representing the exploitation of the commons by market forces as carrying out God's plan for those who are to be saved? What were the intellectual influences that marginalized the importance of the worker's skills, their control of the tempo of work and use of technologies? What are the current techno-scientific and market forces that are threatening the diversity of seeds, and local knowledge of how to adapt agricultural practices to the characteristics of local soils, weather patterns, and so forth?

In addition to introducing, particularly as the students move into the upper grades and onto the university, the various histories of different forms of enclosure, the role of being a mediator also requires that students be introduced to how different cultures have sustained their cultural and environmental commons while at the same time ensuring that their local markets did not dominate the patterns and values of everyday life (W. Sachs, 1992; W. Sachs, 1993). Knowledge of the intergenerational traditions of other cultural approaches to the cultural and environmental commons will enable students to gain a better perspective on whether the current myth that equates the Western scientific-technological and market driven approaches to creating greater dependence on what is industrially produced and consumed should be the basis of development in other cultures. There is a need to enable a large percentage of the world's population that is mired in poverty to obtain a decent standard of living and to enable them to experience more than a life of drudgery and stunted development. The critical question is whether the further enclosure of the diversity of the world's cultural commons will achieve this end.

To this point, the discussion of the teacher/professor's role as a mediator between the students embodied/culturally nested experiences in the local cultural commons and in the workplace and shopping malls of the industrial culture has been general in nature. It is now necessary to address how to engage students from a variety of backgrounds that make them especially vulnerable to the prejudices currently perpetuated by the educational system's emphasis on the high-status knowledge that perpetuates poverty and deepens the ecological crises. As mentioned earlier, every culture has its distinct intergenerational traditions of preferred foods, approaches to the creative arts,

healing practices, ways of understanding moral reciprocity, craft knowledge, narratives of past achievements and leaders, mentors in various arts and crafts, understanding of what constitutes social justice, and so forth. For example, if one goes to the largely Hispanic community in San Francisco they will find that many of the walls of buildings that previously were used to advertise cigarettes and liquor have been reclaimed as part of the cultural commons. Giant murals now depict past struggles, important cultural leaders, and visions of what the future should hold for Hispanic communities. The same reclaiming of this part of the cultural commons can be found in Detroit and other major cities. Other examples of the cultural commons can be seen in the community gardens where traditional foods are grown, in the local poets, artists, writers, and musicians who are willing mentors of the community's youth. There are elders and people who take responsibility for keeping alive the oral history of the group, just as there are living traditions of how assist the especially vulnerable to the problems of extreme poverty, old age, and hopelessness. The nature of these cultural commons vary from community to community, from ethnic group to ethnic group. As the cultural commons of these ethnic and marginalized groups are nested in the cultural commons of the larger society, with its traditions of civil liberties, traditions of achieving legal redress of discriminatory practices, and of affecting changes through an admittedly flawed democratic process, it is important that these traditions also be recognized as essential aspects of what marginalized students should claim as their cultural commons.

The starting point in a commons-oriented curriculum is to have students conduct a survey of their local cultural commons, as well as the aspects of the larger cultural commons that they have a right (in spite of past exclusions) to participate in. The survey should involve learning who the elders and mentors are, who the keepers of the community memory are, what forms of cultural commons activities exist—such as playing chess, painting, writing poetry, musical performances, gardening, working with wood and metal, volunteerism, political action groups, etc. In a word, the survey should cover the activities and relationships within the community that are less reliant upon a money economy—and that lead to the development of skills and interests that contribute to a less damaging ecological footprint.

After the survey has been undertaken, the process of learning to make explicit the differences between their embodied/culturally nested experiences with different activities within the cultural commons and in the world of industrial work and consumerism can begin. This process of learning to recognize differences that otherwise are taken-for-granted as the students move between the two

sub-cultures, and to name them, provides the linguistic and conceptual basis for the communicative competence necessary for resisting further forms of enclosure by market and scientific/technological forces. Resistance may take the form of overcoming the silences about the nature and importance of the local cultural commons being perpetuated by public schools and universities. It also may take the form of resisting the false promises of developers who want to attract the large commercial enterprises that will eliminate the small shop keepers and service providers—as well as the open physical spaces that enable members of the community to connect with the natural world, and to have community gardens and places for children and others to play and to escape the pressures of the media and the temptations of the shopping malls. Communicative competence is also necessary to giving voice to what aspects of the techno-scientific/industrial culture needs to be abandoned as ecologically unsustainable—and which aspects can make a contribution to improving the lives of people while still having a smaller ecological footprint.

One of the failures of the educational theorists who have been writing about the need for educational reforms that address the seemingly intractable problems of class, race, and gender discrimination is that they have continued to use the metaphors of “individualism”, “progress”, “emancipation”, “intelligence”, “tradition’, etc., that carry forward the analogs formed in the distant past by theorists who ignored cultural differences, the nature and importance of the cultural and environmental commons, and that there are ecological limits. In effect, the arguments for addressing the issues of race, class, and gender have been based on a metaphorical language that has been frozen over time, and that continues to put out of focus the intergenerational relationships and knowledge that provide alternatives to the form of individualism that is dependent upon consumerism to meet daily needs. Reliance upon the metaphorical language that gave conceptual legitimacy to the rise and current globalization of an industrial/consumer dependent lifestyle can also be understood as yet another unrecognized example of how language continues to colonize the present by past ways of understanding (Bowers, 2008, pp. 33-39).

Learning to participate in what remains of the local cultural commons, and in developing new skills and non-monetized relationships will have the effect of expanding how intelligence is understood—from that of an individual attribute that is subjectively centered to understanding that intelligence is communal, intergenerational, and enhanced through participation with others, and with the environment. As the communal and intergenerational nature of intelligence may be the source of prejudices and environmentally destructive lifestyles, it is important for teachers/professors

help students recognize the forms of intelligence that are destructive of human possibilities and well as the ways of thinking that are informed by today's understanding of social and ecojustice. This has been part of the curriculum that has been addressing various forms of discriminatory relationships and patterns of thinking. Too often this process of clarification has, at the same time, reinforced the idea that critical thinking is the expression of individual autonomy. Making the student's culturally influenced embodied experiences in the local cultural and environmental commons an integral part of the curriculum will help to reconstitute how individualism is understood—from that of being autonomous and essentially alone to recognizing that one of the unique characteristics of life is being in relationships that constantly lead to a redefinition of self that reflect changes in the social and environmental context. "Tradition", which still carries forward the reductionist thinking of the Enlightenment writers, will also cease to be an abstraction that misrepresents the complexity of daily experience in both the cultural commons and in the industrial/consumer oriented culture. Instead of thinking that change always is a progressive force, the embodied experiences within the cultural commons will lead to a more complex and critically informed understanding of which traditions need to be carried forward and renewed, and which traditions need to be rejected as environmentally destructive and as sources of injustice.

One of the metaphors that is in special need to being associated with new analogs is "environment" which is now understood as the background within which human experience takes place or as an exploitable resource. If the teacher/professor explains, and has students test out in terms of their own embodied experiences, how different environments can be understood as ecologies—and that ecologies include both the interactions and interdependencies within natural systems as well as within cultures (and the interdependencies between culture and nature) they are more likely to be aware of the different ways in which their activities impact the sustainable characteristics of natural systems. Students still rooted in the beliefs of their indigenous heritage already possess this awareness, but students who have been uprooted from their cultural traditions (which may not have been ecologically centered in the first place) will need to develop this awareness. And this awareness will be essential to slowing the rate of environmental degradation that will impact them the hardest in coming years.

The challenge now is for the proponents of educational reforms that address the issues of class, race, and gender to recognize that an approach to achieving social justice for the millions of marginalized students cannot be based on the same deep cultural assumptions that created the

industrial/consumer-oriented culture that is largely responsible for the injustices that continue to stunt the potential of students. This challenge will be particularly difficult to address as few of today's proponents of educational reform have given attention to how language helps to organize their patterns of thinking in ways that reproduce the silences and cultural assumptions of past theorists who contributed to today's double-bind patterns of thinking. The problem is that the double bind thinking of these self-proclaimed social justice theorists continues to equate progress with achieving greater equality of opportunity for marginalized groups to live a middle class consumer dependent lifestyle-- while the world is moving closer to the ecological tipping point scientists are warning about.

References

- Bowers, C. A. (2007) Handbook for Faculty Workshops on How to Introduce Cultural Commons and Ecojustice Issues into Their Courses. Eugene, OR.: Eco-Justice Press.
<http://cabowers.net>.
- _____. (2008) Toward a Post-Industrial Consciousness: Understanding the Linguistic Basis of Ecologically Sustainable Educational Reforms. Eugene, OR.: Eco-Justice Press,
<http://cabowers.net>
- Freire, Paulo. (1974) Pedagogy of the Oppressed. New York: Seabury Press.
- Giroux, Henry. (1988) Teachers as Intellectuals: Toward a Critical Pedagogy of Learning. Granby, MA.: Bergin & Garvey.
- Gruenewald, David. (June, 2008) "The Best of Both Worlds: A Critical Pedagogy of Place"
Environmental Education Research. Vol 14, No. 3. pp. 308-324.
- Gruenewald, David, and Gregory Smith (2008, editors) Place-Based Education in the Global Age.
 New York: Lawrence Erlbaum.
- McLaren, Peter. 2005) Capitalists and Conquerors: A Critical Pedagogy Against Empire.
 Lanham, Maryland: Rowman & Littlefield.
- Polanyi, Karl. (2001 edition) The Great Transformation. Boston: Beacon Press.
- Sachs, Wolfgang. (editor) 1992. The Development Dictionary: A Guide to Knowledge as Power.
 London: Zed Books.

_____. (editor, 1993) *Global Ecology: The New Arena of Political Conflict*. London: Zed Books.

Sale, Kirkpatrick. (1995) *Rebels Against The Future: The Luddites and Their War on the Industrial Revolution*. Reading, MA.: Addison-Wesley.

Shiva, Vandana (1996) *Protecting Our Biological and Intellectual Heritage in the Age of Biopiracy*. New Delhi: Research Foundation for Science, Technology and Natural Resource Policy.

Chapter 11 Suggestions for a State System-Wide Approach to Ecologically Sustainable Reforms of Public Schools

As more and more scientists are warning about the urgency of addressing the environmental crises public school teachers and faculty in colleges of education need to be motivated to introduce reforms in pedagogy and curriculum that will contribute to slowing the rate of environmental change. Most are unaware of the depth of the crises. Nor are many aware that the cultural values and patterns of thinking they reinforce in their classes are part of the same mind set that is deepening the crises. Scientists are now referring to a “tipping point” where changes in human behavior will not reverse or slow the increasing rate of environmental degradation. Educational reforms must go beyond that of encouraging students to recycle and to think of themselves as stewards of the earth. Educational reforms that focus on both the cultural roots of the ecological crises and reforms that will strengthen communities in ways that reduce the human impact on natural systems must be given legitimacy at all levels of government—from the Governor’s Office, the State Board of Education, the State Department of Education, to the colleges of education throughout the state. Only when these levels of government signal that educational reforms for a sustainable future are a top priority will professors and classroom teachers recognize the need to commit themselves to this collective effort.

Conceptual issues that should guide reform in the areas of curriculum and pedagogy (Einstein identified the key problem of our age when he said that you cannot use the same mind set to fix the problem that created it)

- Professors of education and classroom teachers must be able to recognize how the language in the curriculum and in other learning situations carries forward the misconceptions and biases of earlier thinkers who were unaware of environmental limits. They have demonstrated the ability to recognize how language in the curriculum reinforced racial and gender biases. Now they need to be able to recognize the layered metaphorical nature of the language—including how root metaphors such as mechanism, progress, and individualism provide the conceptual framework that fails to represent the interdependent relationships within communities and between humans and the regenerative capacity of natural systems. They also need to recognize that words do not have a universal meaning and that the diversity of the world's cultures are based on different assumptions about the nature of community, decision making, and human/nature relationships.
- Students need to be introduced to a more complex understanding of computers, one that highlights the forms of knowledge and relationships essential to less environmentally destructive lifestyles that cannot be digitized. Thus, teacher education programs should provide future teachers with a knowledge of the forms of knowledge and relationships, which will vary from culture to culture, that cannot be digitized. This will require understanding the cultural differences between the spoken and printed word, as well as how the printed word fosters an abstract way of thinking that too often fails to take account of differences in cultural contexts and ways of thinking.
- Professors of education and classroom teachers must be able to introduce into their respective curricula an understanding of how to engage students in revitalizing the intergenerational cultural commons of their community. This is vital to strengthening local traditions of mutual support, self-sufficiency, and patterns of decision making, while also reducing dependence

upon a level of consumerism that is a major contributor to the ecological crises. It is especially important that teachers enable students to recognize how participating in various aspects of the cultural commons leads to the discovery and development of personal skills and interests—and how these mentoring relationships differ from being a consumer of industrially produced products and services. Enabling students to recognize the differences between the genuine contributions of the industrial/scientific/technologically based process of production and consumption and what is destructive of community and natural systems is also essential to democratizing the changes that will contribute to a more sustainable future.

- The curriculum reforms must include an historical understanding of the different ways that the local cultural commons, as well as the diversity of the world's cultural commons, are being enclosed (that is, being integrated into the world economy that requires participation in a money economy at the same time that automation and outsourcing are making employment a less reliable as a source of income).
- Local sustainability councils made up of members of the community who possess knowledge of sustainable living practices-- ranging from organic gardening, conserving water, sustainable forestry practices, relying upon alternative sources of energy, planting edible yards, carbon neutral practices, to how to provide environments for honeybees and other pollinators—need to be created and organized in ways that that enable them to mentor students in the knowledge and skills necessary for sustainable and toxic-free living. These councils will be able to pass on knowledge and skills that reflect the differences in the local cultural commons as well as the differences in the local bioregions.

Organizational structure for implementing educational reforms that will contribute to an ecologically sustainable future.

As a system wide approach to introducing reforms in teacher education and related programs involves a wide range of innovations that must be adapted to the uniqueness of local communities it is important that a full time coordinator who has responsibility for promoting ecologically sustainable reforms needs to be hired. While the funding for this position might come from outside

sources, the coordinator needs to be located in the State Department of Education. The responsibilities of the coordinator would include:

1. Oversee the development and dissemination of curriculum materials that address reforms in the area of language, knowledge of local cultural commons, increasing awareness of culturally and environmentally destructive practices, and the development of communicative competence essential to democratic decision making.
2. Schedule workshops in different regions of the state for professors of education, school administrators, and classroom teachers that introduce them to the curriculum reforms—as well as how to coordinate school activities with local sustainability councils and to enlist the support of community members who are already engaged in cultural commons activities.
3. Develop a network of retired teachers who will serve as mentors to classroom teachers, and who will help them understand how to introduce students to an understanding of the many ways that the language in the curriculum and in the larger society often carries forward the patterns of thinking that were constituted before there was an awareness of environmental limits.
4. Provide training sessions for sustainability mentors who will help classroom teachers in the areas of pedagogy and curriculum that will introduce students to the dynamics of how language reproduces earlier ways of thinking and valuing, as well as an understanding both the nature of the cultural commons and the cultural forces that are undermining them.

A person should be hired as an assistant to the coordinator. The responsibilities of this person would be to establish and maintain a website and a network for email communication that would enable participants in the state-wide system to share ideas on sustainable educational practices that others might find useful. An essential purpose of this network would be to share with deans,

school administrators, and classroom teachers scientific reports on changes occurring in the Earth's ecosystems, as well as how these changes are affecting the lives of people.

Cautionary Observation:

Government leadership promoting educational reforms that address how to live more ecologically sustainable lives, and that will ensure the prospects of future generations, may appear initially as in conflict with the long-held tradition of academic freedom. The scale of changes that the Earth's natural systems are undergoing, and the human dislocations and further impoverishment that will result for hundreds of millions of people is unprecedented in human history. Thus, it is important to recognize that contemporary educational ideas and traditions that were constituted when it was assumed that the quest for constant change was a moral and professional responsibility of all members of the academic community has led to the idea that professors should pursue their own scholarly interests, and to teach what they personally believe in. This tradition now needs to be refocused in ways where academic freedom and critical reflection address how to reduce the human/cultural impact on natural systems while at the same time working for a more socially just future. In the recent past most members of the educational community refocused their freedom of inquiry in ways that addressed social justice issues as well as the need to eliminate racism and gender bias. Now it is time to refocus the boundaries of academic freedom in ways that contribute to a broad stakeholder based effort for ensuring an ecologically sustainable and culturally diverse future.

Funding for a state-wide approach to educating for an ecologically sustainable future

As individual efforts to introduce educational reforms for an ecologically sustainable future have had little influence within colleges of education and within public school systems across the country, there is a need for leadership. Hopefully, the governors have already made ecological sustainability a priority for government supported institutions. The reality is that current state of inertia will only be overcome as governors, the state legislatures, State Departments of Education, and State Boards of Education support a closer alignment of educational reforms with the overall goal of achieving a sustainable and socially just future for the diverse population. Funds necessary for implementing the above proposal should be given the highest priority. The cost would include the salaries for the coordinator and the person managing the website and internet communication, workshops for a variety of groups in different regions of the state (including travel and other

expenses connected with conducting the workshops), and the development of curriculum materials. Retired classroom teachers and university professors can be relied upon to help with these efforts. It is likely that deans and superintendents of school districts will be able to find within their limited budgets some level of financial support. If the state were to put \$250,000 over a two year period into a state-wide approach to ecologically sustainable educational reforms, it should be possible within this period of time to demonstrate the efficacy of the approach outlined above. More specifically, it should also be possible within this period of time to learn how to engage local sources of support in adapting curriculum reform to achieving greater self-sufficiency of local economies and mutual support systems within communities, as well as the need for strengthening the knowledge base of educators who lead workshops on how to introduce ecologically sustainable educational reforms. It should also provide a clearer understanding of the future resources that will be needed for introducing reforms into specific areas of the curriculum that support the gains already made in raising academic standards.

This initial effort to promote reform on a state-wide basis would, in turn, attract the support of foundations as well as the interest of other states in adopting this model. To reiterate the point that Einstein makes: not only do we need to avoid passing onto the next generation the mind set that has contributed to overshooting the sustaining capacity of natural systems, we also need to keep in mind that we do not have available to us the hundreds of years that it took to overcome the misconceptions of the past related to gender and racial biases. Global warming, changes in the chemistry of the world's oceans, and a myriad of other environmental changes that are already contributing to the spread of poverty and to disruptions in the viability of local communities, are occurring at a rate that is affecting the quality of life of the current generation—and will have a much greater impact on the prospect of future generations. Environmental changes, in effect, are challenging us to face the reality that our world is at a turning point, and that our industrial system of production and consumption can no longer protect us from the environmental consequences of holding onto the old cultural myths—including the myth that educational reforms do not have to address cultural roots of the deepening ecological crises.

Chapter 12 A Rationale and Guide for Deans of Colleges of Education on How to Introduce Ecologically Sustainable Reforms in Teacher Education and Other Programs

Colleges of education across the country will shortly be held accountable for meeting the certification goals being promoted by the American Association for Sustainability in Higher Education. The rating system for certifying colleges and universities is called STARS (Sustainability, Tracking, Assessment, and Rating System). It is a self-evaluation system for determining progress toward sustainability goals in different sectors of the university: administration, finance, education, research, and operations. Ninety colleges and universities have already agreed to participate in this pilot program. One of the outcomes of the STARS system of certification will be the growing number of students concerned about environmental degradation who will enroll in institutions with the highest Stars rating. These students will be tomorrow's leaders in sustainable living.

The following guide for deans will facilitate the ability of colleges of education to demonstrate leadership in meeting the STARS certification goals of the university, as well as the potential certification criteria of other national organizations such as the Higher Education Association's Sustainability Consortium, the American College and University Presidents' Climate Commitment, and the Disciplinary Associations' Network for Sustainability.

Environmental Challenges

Deans and department chairpersons in colleges of education are now being confronted with a new set of challenges. The need to reduce the environmental impact of our culture is being documented by the steady stream of scientific reports on the declining state of natural systems. These new environmental/cultural challenges will not reduce the importance of addressing traditional social justice issues—including the pressures from local communities and the federal government. These will remain important challenges, but the challenges we now are becoming increasingly aware of, given the consensus of scientists, is entirely different—and have consequences that are already set in motion on a global scale.

Leadership is needed in preparing classroom teachers with the necessary knowledge and pedagogical skills that will enable students to live a less consumer and thus less individualistic and change-oriented lifestyle. One of the paradoxes that few faculty recognize is that the ideal of the autonomous individual who has not learned the value of the intergenerational knowledge, skills, and mutually supportive relationships that are the basis of greater community self-reliance, is the kind of individual required by the industrial system of production and consumption. Overcoming faculty

resistance to recognizing how many of the ideas and values that have guided their own approaches to education contribute to the consumer dependent lifestyle that is one of the major contributors to degrading the ability of natural systems to renew themselves will be a difficult challenge—especially since many will claim that academic freedom protects their right to promote educational reforms even though the reforms contribute to overshooting the sustaining capacity of natural systems. The dawning of a new consciousness, which the civil rights and feminist movements are still struggling to achieve, requires both conceptual and moral leadership. The same conceptual and moral leadership will be required in transforming the long-held traditions of thinking in colleges of education.

Before spelling out the broader implications of basing educational reforms in teacher education and other areas of study on ecologically sustainable ideas and values, it is necessary to summarize the nature of the changes that the Earth's natural systems are undergoing. It is important to keep in mind that this summary must take account of the realities of the world in which we now live. **Changes in natural systems:** The industrial system of production and consumption, along with the decline in the ability of species and habitats to regenerate themselves, are increasing the rate of global warming as well as changing the chemistry of the world's oceans. Degraded habitats in oceans and in different regions of the world are leading to the disappearance of species (including a rapid decline in the viability of the world's fisheries). Other environmental changes include the spread of deserts, the melting of glaciers that are the source of water for hundreds of millions of people. The loss of topsoil, depletion of major aquifers, and the destruction of forests, are also major sources of change already influencing the prospects of the current and future generations. **Increase in world population and the spread of poverty:** Over the last hundred years the world population has increased by five and a half billion people at the same time the natural resources have been exploited in ways that have led to the impoverishment of more people. The current estimate is that over 2 billion people live on less than two dollars a day. For the different groups in American society, the era of cheap food is over—which, along with the rising cost of fuel and other basic services will force many people further into poverty. **Changes in Lifetime Employment:** Economic globalization, along with the spread of the morally unrestrained culture of corporations, will cause more people to outlive their savings in the increasingly privatized retirement programs. The lack of health insurance now experienced by nearly forty-seven million Americans is the leading cause of bankruptcy and homelessness. Youth entering the job market will find that the outsourcing

of work to low wage regions of the world, even in highly skilled occupations, will limit their possibilities—and thus their ability to educate their children, to own a decent house, and to save for retirement. The present plight of older workers will also be the plight of younger workers as the government safety nets become further overwhelmed by the current shift in the distribution of wealth in society.

The future is made even more uncertain by the current globalization of an industrial/consumer oriented lifestyle. While economic globalization is being viewed as the expression of progress, it is increasing the rate of global warming and the depletion of the Earth's natural resources.

Unfortunately, scientists and other experts have no way of knowing the regenerative capacity of the natural systems that are being exploited at an accelerating rate. How long will it take for various fish stocks, such as the codfish once so abundant and the blue fin tuna now on the verge of extinction, to recover? Can the aquifers that are being mined as though they are an infinite resource regenerate themselves within our lifetimes—or even the seventh generation from now? Can the world's oceans reverse the acidic levels and warmer temperatures that are now contributing to the death of coral reefs that nearly 25 percent of fish species depend upon? What is the time frame for regenerating the glaciers that are the source of fresh water for hundreds of millions of people? Even though we do not have the answers to these questions, more of the world's governments have made the adoption of the American consumer lifestyle their goal. Many regions of the world are already experiencing the degradation of natural systems that were assumed to be inexhaustible—such as potable water, forest cover, topsoil, fisheries, petroleum, and other natural minerals.

Globalization is dependent upon an increased reliance on Western technologies—especially technologies that rely on microchips. While there have been genuine benefits from the development of computer-based technologies the increased reliance on these technologies has led to losses that go unnoticed. Many of the losses are the very traditions that would enable us to slow the rate of environmental degradation and the depletion of natural resources. For example, as youth become increasingly dependent upon cell phones, and on Internet based relationships, learning, and gaming, it is assumed that they are gaining more control over their lives—such as participation in a peer culture of their choice, directing their own learning, and in pursuing their own form of entertainment. The more time youth spend in the online culture the less likely they will become aware of the local cultural commons that provide alternatives to being dependent upon the industrial/consumer-based culture. Instead of becoming increasingly empowered, they are, in effect, becoming more dependent

upon an economic system that is under stress from outsourcing, the increasing cost of basic materials and transportation, and competition from regions of the world where wages are low and environmental regulations non-existent. As the ecological crises deepen they will be unaware of how much of the intergenerational knowledge of how to live more mutually supportive and less money dependent lives will have been lost. While living in the Internet cocoon will continue to isolate them from engaging in the renewal of the intergenerational knowledge, skills, and mutually supportive relationships of the local cultural commons, they will still experience the shortages and dislocations resulting from the twin crises caused by global warming and economic globalization

Briefly, the **cultural commons** encompass those aspects of community life that are less dependent upon a money economy and thus are less environmentally destructive. The cultural commons include the intergenerational knowledge, skills, and relationships that are relied upon in the areas of growing and preparing food, expressive arts, craft knowledge and skills, narratives and ceremonies, civil liberties, healing practices, games, and even language itself. Communities in every culture are sustained in part by the intergenerational renewal of their cultural commons—which may also include traditions that do not meet today’s social justice standards. The important point, however, is that the local cultural commons include relationships characterized by mutual support, mentoring, and the development of personal talents and skills—all of which are fundamentally different from being dependent upon what is industrially produced or that involve monetized relationships. To reiterate a key point, as youth become increasingly dependent upon the new Internet technologies the less likely they are to participate in the cultural commons of their communities in ways that enable them to discover personal talents and skills that strengthen the bonds of community. And the less likely they are to be aware of how ideologies, technologies, and economic forces are enclosing more aspects of the cultural commons—thus forcing them to become increasingly dependent upon a money economy that is becoming less and less reliable.

Initial Awakening to the Importance of the Ecological Crises

Increasing attention is being given to reducing the human impact on the natural systems at all levels of government--from the United Nations, federal, state, and even to city government,. While primarily motivated by the possibility of increasing their profit margins, businesses ranging from mega corporations to small one-person operations are attempting to use energy more efficiently and to be more mindful of reducing excessive waste. University presidents across the country are signing declarations promising to exercise leadership in promoting ecologically sustainable reforms--though

most of the reforms are limited to recycling programs and to the introduction of more energy efficient technologies. While science faculty have made the environmental crises a major focus of their research and teaching in the sciences, the situation is quite different in other areas of the university. For example, in the social sciences and the humanities the reforms are being undertaken by a distinct minority of faculty, and mostly consist of adding readings by environmental authors to existing courses in the traditional disciplines. Exposure to environmental writers raises awareness of the many ways in which the environment is being degraded, but it does not provide students with the practical knowledge of the community-centered alternatives to consumerism and the so-called “progressive” forces that are enclosing the world’s diverse cultural commons. The sustainability initiatives listed on the website of the American Association for Sustainability in Higher Education bulletin@aaashe.org demonstrate once again how relying upon technological solutions is being viewed as more important than the need for a fundamental change in consciousness. What is happening in colleges and departments of education is typical of the rest of the university. Just as in the sciences, the environmental educators engage students in learning how to introduce such environmental issues as the degradation of local habitats, the loss of species, and the industrial sources of environmental damage into their public school classes. Introducing students to environmental authors can only be found in courses taught by a few faculty in the area of educational foundations. The limited interest in environmental issues by faculty in colleges and departments of education is illustrated by the fact that of the over 10,000 faculty who attended the 2007 meeting of AERA in Chicago there were less than 20 papers that focused on environmental issues, and less than 5 papers that addressed educational reforms related to introducing students to the mutually supportive nature of the local cultural commons. The irony is that even though such groups as Real Estate organizations are requiring their agents to pass a test certifying their knowledge of the ecologically sustainable characteristics of houses, the majority of faculty in colleges and departments of education continue to frame the content of their courses and research in terms of the social justice priorities and interpretative frameworks that were constituted before there was an awareness of the growing ecological crises.

The tradition of departmental autonomy has led education faculty to refrain from encouraging colleagues in other departments to begin introducing ecologically informed curriculum reforms, particularly in the teacher education programs. However, there is evidence that a few environmental educators are beginning to recognize that the destruction of the cultural commons has a direct

relationship to the environmental damage they are working to reverse, and are joining what can be called the eco-justice network. The environmental educators and educational studies faculty that make up this network are spread across the country and number less than a 100 members. An even smaller number have participated in workshops that addressed how the language in various areas of teacher preparation, and used by classroom teachers --including public school curricula--carries forward the misconceptions of earlier times when there was no awareness of environmental limits. These workshops helped to clarify how the deep taken for granted cultural assumptions that still underlie the current digital phase of the industrial revolution that is now being globalized are also the taken for granted assumptions that underlie what is being learned in most education classes. These assumptions, in turn, are being passed on to public school students.

These workshops demonstrate why reforms in teacher education and other areas of educational study that are based on a different paradigm cannot be initiated in any broad and lasting way by individual faculty members. Participants in the workshops, which were far too short to provide the in-depth knowledge required to understand the connections between language, various forms of cultural colonization, and the forces that are transforming the world's diversity of cultural commons into new markets, returned to their departments to find that few of their colleagues understood their new insights and approaches to curriculum reforms. In some instances, they were met with hostility as they were seen as no longer reinforcing the values and ideas that their colleagues associated with progressive educational reforms. In effect, the eco-justice/cultural commons orientation of the workshops and publications brought into focus the difficulty of engaging in discussions with colleagues who still take for granted the same cultural assumptions that underlie the modern individualistic, progress-oriented mindset.

The difficulty of an individual faculty member to bring about a major shift in the thinking of colleagues has its roots in the unique culture of academia. Perhaps the two most powerful impediments to making this paradigm shift are the traditions of academic freedom and the specialized language and values associated with different fields of study-- such as school administration, educational psychology, curriculum, teacher education, educational studies, and so forth. The specialized language and interpretative frameworks that have their roots in a past when environmental limits were not understood make it difficult for faculty to communicate with others who are accustomed to thinking within specific traditions of inquiry. The need to adhere to what is deemed politically correct in the larger society and across the fields of study in education generally

have limited the introduction of new ways of thinking. In spite of the important role that academic freedom has played in the past, this tradition remains one of the chief obstacles to engaging colleagues in a serious and prolonged discussion of the educational reforms that must be undertaken. Academic freedom should not be used as an excuse for dismissing the need to address the ecological challenges we face. There are other major impediments to recognizing that what is being learned in teacher preparation programs, and in the supporting areas of research and teaching, must undergo fundamental changes. These include the demands made by state and federal governments—and the constant quest for innovations that further strengthen the modern paradigm that is ecologically uniformed. Time to think deeply and to engage in sustained discussions of which traditions of thinking within colleges of education need to be carried forward, reformed, or abandoned entirely is severely limited by heavy teaching loads, committee meetings, pressure to publish, advising students, and keeping current with their special field of interest.

Understanding the Leadership Role of Deans and Department Chairpersons in Initiating and Sustaining Ecologically Informed Reforms in Teacher Education

Reform of education courses generally, and especially teacher education programs, will require deans and department chairpersons to provide both conceptual leadership as well as the ability to hold faculty accountable for working through the difficulties in making the paradigm shift that is now required. The major difficulty that both administrators and faculty face is that they were, with few exceptions, educated to think within the conceptual paradigm that was based on assumptions that did not take account of environmental limits. To paraphrase Albert Einstein, we cannot rely upon the same mind set that created the problem to fix it. Understanding the shift in thinking that must take place in colleges and departments of education requires thinking against the grain of so many of the conceptual orthodoxies held by both education faculty and faculty in the sciences, social sciences, and humanities. The need for making a paradigm shift is, in effect, a university wide problem. The following is a brief sketch of the differences between the two paradigms.

Key ideas and assumptions that underlie the paradigm that most academics were socialized to accept as leading to a socially just and progressive future.

- The individual is the basic social unit, and progress is defined in part by empowering individuals to think for themselves and to create their own values.

- Change, especially when based on scientifically informed technologies and new ideas, is inherently progressive. One of the goals of the educational process is to contribute to more change.
- This is a human-centered world, and one of the purposes of rational thought is to control and exploit the natural environment in ways that improve the human condition.
- Language is a conduit in a sender/receiver process of communication, thus making it possible to share objective knowledge.
- Individuals are capable of exercising rational thought in ways that are uninfluenced by the assumptions of the culture into which they were born.
- Traditions, except for holidays and religious ceremonies, are generally impediments to progress and to the realization of the individual's fullest potential.
- Computers are a culturally neutral technology that enables students to access the world of information necessary for the construction of their own ideas and values.
- Multicultural awareness should be one of the primary goals in teacher education and other areas of educational studies—and there is no conflict between understanding and appreciating cultural differences and promoting the key values and assumptions that underlie the modernizing mainstream culture of the West.
- The social justice agenda inherent in teacher education programs, and in other areas of study, prepares students to experience equality of opportunity in the areas of work, politics, and consumerism.

Key ideas and assumptions of that will lead to more ecologically sustainable cultures, and that will help reframe approaches to teacher education, curriculum, learning theory, administration, environmental education, and educational studies.

- The individual is nested in culture, and culture is nested in natural systems—thus the individual must be understood as part of the interacting ecologies of interdependent relationships. In effect, the idea (and ideal) of the autonomous individual is a western cultural myth.
- Language is metaphorical in nature and carries forward the patterns of thinking (the analogies settled upon in the distant past) that were constituted before there was an awareness of environmental limits and the diversity of cultural ways of knowing. As the root metaphors

underlying Western culture influenced the selection of many of the analogies we still rely upon, such as thinking of change as progressive in nature and a human-centered world, today's educational process continues to reinforce students for adopting the level of intelligence (or unintelligence) of past thinkers.

- Intelligence, from an ecological perspective, is relational, participatory in ways influenced by the information exchanges within the natural environment, influenced at a taken-for-granted level by the layered nature of metaphorical thinking, embodied, and expressive of the culture's basic narratives.
- Tradition is a metaphor that carries forward the misconceptions of Enlightenment thinkers. Actually, traditions represent all the ways of thinking, practices, and values of the culture that have survived over four generations. Traditions are sources of empowerment, special privileges and forms of exploitation, and are constantly changing—sometimes before there is an awareness of the importance of what is lost, and sometimes too slowly. People who hold the idea that traditions do not change should be referred to as “traditionalists”.
- The cultural commons, which exist in all of the world's communities, include the intergenerational knowledge, skills, and patterns of mutual support that enable people to live less consumer dependent lives—and thus to have a smaller adverse impact on the natural environment. If students learn to think of traditions as a source of backwardness and of themselves as growing more autonomous, they will continue to ignore how their embodied/culturally mediated experiences of participating in the local cultural commons differ from their experiences in the industrial/consumer oriented culture.
- Social justice issues need to be understood within the context of what reduces the exploitation of the resources of other cultures, of what enables people to participate in the cultural commons that strengthen mutual support while reducing their dependence upon a money economy, and of learning to develop personal talents and skills through mentoring relationships.
- Teacher education programs need to prepare classroom teachers to recognize that words have a history and that they often carry forward the misconceptions and biases of the culture that is overshooting the sustaining capacity of natural systems, to play the role of a mediator who helps students recognize the differences in their cultural commons and consumer-based experiences—and to help them acquire the language necessary for communicative

competence in resisting the further enclosure (monetizing and privatizing) of the cultural and environmental commons.

In effect both faculty and administrators will be challenged to rethink the conceptual frameworks they acquired as part of their own graduate studies and subsequent socialization within their specialized areas of inquiry and teaching. This challenge is not an expression of my own biases and subjective judgments. Rather, it is being dictated by the different ecosystems that are being degraded to the point where they can no longer sustain the North American consumer lifestyle—much less the consumer dependent lifestyle that the hundreds of millions of people in such countries as India and China are now pursuing.

If there ever was a time for leadership it is now! But the question that needs to be addressed is: How can the dean and department chairpersons provide this leadership when they themselves may not have a solid understanding of the ecologically and culturally problematic nature of many of the deep cultural assumptions that are so widely taken for granted by their colleagues across the country? They can begin by convening a meeting of the entire faculty for the purpose of hearing a scientist explain the changes occurring in the world's oceans, when humankind is likely to reach the tipping point where the rate of global warming cannot be slowed by human effort, the consequences that accompany the melting of glaciers and the release of methane now frozen in the permafrost that is now beginning to melt, the loss of species, habitats, and topsoil, the shifts in weather patterns that are contributing to droughts and the desertification of previously fertile lands. This talk should send the message that if there is going to be a sustainable future for their children, and for their children's children, fundamental changes must be introduced in the education of teachers—and in content of curriculum materials.

The next step is to schedule a series of faculty discussions for the purpose of considering how the basic assumptions that underlie the individualistic/progressive agenda contribute to overshooting the sustaining capacity of natural systems and to undermining the cultural commons. These discussions also should consider not only the implications of the ecologically informed assumptions for introducing reforms in teacher education programs but lead to basic changes in pedagogy and curricular decision making.

Although some faculty will embrace this approach and will want to move forward by revising their courses accordingly there will be forms of resistance that need to be recognized. For

example, many faculty will be unwilling to engage in in-depth discussions, and will dismiss the issues as irrelevant. Others may think that the pedagogical and curricular implications of the assumptions that underlie an ecological way of thinking can be fully understood by participation in only a couple of sessions. After a few discussion sessions, they will return to their traditional patterns of thinking. One of the characteristics exhibited by even highly intelligent faculty is the tendency to reduce the complexity of issues and ideas to simplistic representations that quickly can be dismissed. Another problem that often arises when new ideas are introduced is that too often faculty will limit their interest to learning the new vocabulary and then show no interest in understanding its fuller implications.

If faculty in colleges of education were already well informed about actual changes taking place in the world's ecosystems their responses would be of less concern.. And if they were more accustomed to thinking within an ecologically and culturally informed paradigm they would be less likely to engage in superficial discussions. The following introduction to the complexity of issues relating to an ecologically and culturally informed understanding of language, intelligence, and the cultural commons, to cite just three examples from the preceding list, is meant to highlight the danger of superficial and reductionist thinking that will ensure that no substantive educational reforms will result.

For example, if education faculty begin to rethink the assumption that language is a conduit in a sender/receiver process of communication they will find themselves addressing some of the most critically important misconceptions shared by many classroom teachers and professors. For example, learning that language is not a conduit, but is based on metaphors whose meanings were framed by earlier processes of analogic thinking that were, in turn, framed by the prevailing taken for granted root metaphors of the culture, has broad and vitally important implications for both teachers and the people who produce curriculum materials. The implications are even more profound for students who are being told that computer mediated learning (which reinforces the conduit view of language) facilitates the construction of their own knowledge. The myth that language is a conduit hides how language carries forward the insights and, more often, the misconceptions of earlier thinkers. When teachers fail to clarify that words have a history, and that their current meaning was framed by earlier processes of analogic thinking that reflect both a culturally specific tradition of thinking and the political struggles of an earlier time, students are

likely to assume that words provide a factual account of events and thus are the source of objective knowledge.

To put it more succinctly, not only does language carry forward the patterns of thinking that both teachers and students may take for granted, it can also be understood as one of the more powerful expressions of linguistic colonization of the present generation by past generations. Relying upon the analogies settled upon at an earlier time may also reduce the students' ability to make an intelligent response to current relationships, such as thinking of women in the same limited way that was taken for granted over the centuries. The discussion of language presented here only touches the surface of what teachers need to understand as they mediate between the past, present, and future.

Other conceptual orthodoxies that do not take account of environmental limits, and that need to be revised if pedagogical and curricular decisions are to be part of the solution rather than a continuation of the problem, include how to understand intelligence in a way that not only takes account of the influence of language, but also its participatory and relational nature. Most thinking about intelligence, which is increasingly being based on a mechanistic model, is still predicated on the assumptions of the French philosopher, Rene Descartes, and other western philosophers who did not understand the deep symbolic foundations of their own culture and the radically different symbolic systems of other cultures. The idea that intelligence is an attribute of an autonomous individual (autonomous in the sense of being uninfluenced by the cultural assumptions carried forward in the language she/he learns to think and communicate in) assumes that the thinker is an objective observer of an external world. It also assumes that ideas originate along with other mental/emotional processes in the brain. An ecological interpretation of intelligence takes account of a variety of relationships that influence the student's intelligence. These include the ongoing relationships with other people and the environment, the words and interpretative frameworks from the past that carry forward the misconceptions that illuminate and hide what the individual will be aware of, and a host of embodied and psychological influences. These influences on intelligence vary from culture to culture—and in no way correspond with the orthodox view that intelligence is exercised by an autonomous individual who is the source of ideas, and so forth. The pedagogical implications of this more relational way of understanding intelligence, are in turn, complex and not fully grasped in a short discussion session.

Similarly, understanding the nature of the local cultural commons and the forces that are transforming it into new market opportunities that are ecologically destructive is also unattainable if educators think it can be addressed in a couple of sessions. Faculty participate daily in different aspects of their local cultural commons. Unfortunately the failure of their own professors to make explicit the many forms of mutual support, as well as the intergenerational knowledge that enables people to be less dependent upon consumerism, has contributed to their lack of awareness of the need to include in the curriculum an in-depth understanding of why revitalizing the cultural commons, as well as conserving the cultural commons of other cultures, are essential to a sustainable future. Again, understanding the complexity of the cultural commons, including those aspects that are sources of injustice, can be viewed as a career long endeavor—especially if students are to be introduced to the history of the forces that are privatizing and monetizing what remains of the cultural and environmental commons. How should teachers help students become aware of the differences between their experiences in the cultural commons and their experiences as a consumer of what is ready made and that requires participation in a money economy? What do students need to understand about the nature of traditions in order to recognize the importance of some forms of intergenerational knowledge and skill? How does the teacher help them to develop the linguistic basis of communicative competence that will enable them to resist the enclosure of such areas of the cultural commons as the traditions of civil liberties and the narratives of past social justice achievements? What are the different silences in the curriculum that represent the process of enclosure that are not being recognized?

These are just a few of the questions that demonstrate the need for faculty to make a long-term commitment to rethinking whether the cultural assumptions they are reinforcing in their courses will lead to the cultural changes that will help slow the rate of environmental degradation. This commitment, if it is to succeed must be a collaborative effort of the entire department and between departments. If not, students will be taking courses that are based on the same assumptions that gave rise to the industrial/consumer oriented culture that is overshooting environmental limits, and in other courses they will be encouraged to begin thinking of an ecologically informed approach to pedagogy and curriculum—including the place of computers in the learning process. The tensions that will arise within departments as it becomes more evident that the ecological crises are impacting people's lives both here and in other parts of the world will require leadership from deans and department chairpersons. The following list suggests the way leadership can be expressed without

becoming dictatorial and an interference with the faculty member's academic freedom. Leadership can actually facilitate faculty collaboration, especially when the faculty have a clearer understanding that the deepening ecological crises not only threatens their own future but also that of already marginalized groups. As there is little possibility that faculty will begin to introduce ecologically informed changes in their courses and programs if they do not take the ecological crises seriously, it is necessary to emphasize again that the first step in exercising leadership is to have a scientist present the consensus overview of the degraded condition of different ecosystems, as well as the evidence of how these changes are impacting people's lives. Taking this step will also communicate to the faculty the priorities supported by the various levels of administration within the college and university, and that these also are the priorities being promoted on a national basis by American Association of Sustainability in Higher Education and the Higher Education Associations' Sustainability Consortium,

Legitimate and Necessary Expressions of Leadership:

- **Announce that a major priority of the college of education is to collaborate with other divisions of the university in introducing curriculum reforms that contribute to an ecologically sustainable future (see the website of the American Association for Sustainability in Higher Education [bulletin.@aashe.org](mailto:bulletin@aaashe.org)).**
- **Convening the entire faculty for the purpose of listening to the scientific evidence of natural systems that are no longer regenerating themselves at a level necessary for sustaining life, or are undergoing changes, such as global warming, that are already affecting the quality of life of billions of people.**
- **Convene the entire education faculty for a discussion of the cultural roots of the ecological crises. This session should provide an overview of how current thinking and practices being reinforced in the various programs in the college are based on assumptions that do not take account of environmental limits or how to live more community-centered and thus less consumer dependent lives.**

- **Use discretionary funds in the budget for the purpose of collaborating with other colleges of education in sharing the most effective ecologically informed approaches to teacher education and to ways of thinking within other departments of the college.**
- **Ask that department chairpersons provide regular reports on the progress faculty are making in engaging in discussions of the reforms that contribute to more ecologically and culturally informed courses and publications.**
- **Remind faculty that in conducting searches for new faculty attention should be given to the candidate's educational background—specifically whether she/he shows evidence of being able to question currently held assumptions and to engage in dialogue about the reforms that need to be undertaken.**
- **If faculty in a department fail to consider the culturally and ecologically related challenges in recommending the hiring of a candidate, then as a last resort the dean should encourage that a further search be conducted.**
- **Encourage faculty who possess a better understanding of culturally and ecologically informed educational reforms to establish collaborative relationships with faculty in other parts of the university who are addressing similar concerns. The education of most faculty in the sciences, social sciences, and humanities was based on the same deep cultural assumptions that are ecologically problematic and may welcome discussions of pedagogical and curriculum reforms that address the limitations in their own education**
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Summary

While many indigenous cultures have understood for hundreds of years the need to adapt cultural practices to what is sustainable over the long term, it has only been in the last thirty or so years that the exploitation of the environment has become the concern of the American public. Aldo Leopold and Rachel Carson were among the first to sound the alarm. Leopold explained the nature of a land ethic but was unaware of the land ethic of the indigenous cultures that still inhabited the region where he had his life-changing insight. Rachel Carson's concern with the life destroying

effects of the chemicals being introduced into the environment in the name of scientific progress was yet another wake-up call of major importance. The various Earth Day celebrations and international environmental conferences that followed focused mainly on issues of excessive consumption, various forms of environmental degradation, and environmental justice issues. Only recently has attention been given to the taken for granted cultural assumptions—including how they are linguistically passed on—that gave conceptual direction and moral legitimacy to the industrial/consumer oriented culture that is a major contributor to global warming and to the decline in the viability of other natural systems. This needs to be taken into account when understanding why few deans and department chairpersons possess an in-depth knowledge of the conceptual/linguistic issues that need to be addressed in any effort to initiate reforms that are not based on the old (ironically “progressive”) mind-set that is now beginning to be recognized as part of the problem.

Deans and department chairpersons, like the rest of us, should view themselves as participants in the beginning stages of discovering a post-industrial pathway that will avert what Jared Diamond documents in his book, Collapse: How Societies Choose to Fail or Succeed (2005). Other cultures have found their own pathways. Unfortunately, the intergenerational knowledge that has sustained them for thousands of years is now being threatened by economic and ideological globalization. We can learn from their cultural commons without copying them, and learning from them will help to remind us that making ecological sustainability a priority of educational reform needs to be a collaborative effort. The only thing that can be universalized is the danger of ecological collapse now faced by all cultures—and it needs to be recognized that responsible scientists are increasingly using the word “collapse”. What deans and department chairpersons can do, even if their own educational backgrounds do not provide for an understanding of the cultural/linguistic issues that also are being ignored by faculty in other departments of the university, is to keep reminding the faculty that both the ecological crises that scientists are documenting and the cultural traditions that are major contributors to overshooting environmental limits, must be in the foreground of reforming teacher education and in the supporting fields of studies in colleges of education.

Chapter 12 What Should be Included in Teacher Education Programs in an Era of Global Warming

(Explanations of the connections between theory and classroom practice for the following can be found in chapters available in the other online books by C. A. Bowers. Type C. A. Bowers in Google, go to online articles and books, and then to the EcoJustice Press. The chapters also include a list of books that provided the theory from which the pedagogical and curricular recommendations were extrapolated)

Basic theory in the following areas that will inform classroom practices:

1. An understanding of the culture/language/thought connections, such as the cultural origins of metaphorical thinking, how metaphors carry forward earlier forms of intelligence, and how to reframe key aspects of the dominant vocabulary in ways that are consistent with an ecological way of thinking and acting.
2. An understanding of the overlooked characteristics of culture—its taken for granted nature (including the connections between context and tacit understandings), the nature of tradition, the diversity of ways of knowing, the cultural differences between orality and print, the differences between cultures that are ecologically centered and those that are based on myths of progress and possessing a special destiny.
3. An understanding of the cultural and environmental commons, including the diversity of the local cultural and environmental commons, how to make them explicit through ethnographic descriptions, how to recognize the community enhancing characteristics as well as sources of discrimination, how to assess their ecological footprint and consumer reduction characteristics.
4. An understanding of the different ways in which the commons are being enclosed --that is, transformed into commodities and markets, or eliminated entirely. In addition to understanding the different forms of enclosure, teachers should be able to engage students in a discussion of how different forms of enclosure contribute to poverty, to undermining the community's traditions of self-sufficiency, and to degrading natural systems.
5. An understanding of the teacher's mediating role in helping students recognize the differences between participating in the intergenerationally connected cultural commons and being a consumer and worker in the industrial system of production and consumption.
6. Understanding curricular decisions in terms of how they relate to addressing social and eco-justice issues.

Understanding how earlier ways of thinking that were constituted before there was an awareness of other cultural ways of knowing and environmental limits continue to be reinforced in today's classrooms. This includes understanding the nature and historical origins of the following root metaphors (interpretative frameworks that have influenced cultural practices in a variety of areas and over hundred, even thousands of years).

1. Individualism
2. Progress
3. Mechanism
4. Economism (reducing everything and relationship to an economic unit)
5. Anthropocentrism (a human-centered world)
6. Patriarchy
7. Language as a conduit in a sender/receiver process of communication
8. Evolution
9. Ecology

Understanding the how these interpretative frameworks (root metaphors) marginalize the ability to recognize different aspects of culturally mediated experiences that are especially critical today.

1. Ecological limits and the practices that are overshooting them
2. Other cultural ways of knowing and value systems
3. Traditions, including past achievements in the areas of civil liberties and social justice
4. Intergenerational knowledge and skills that reduce dependence upon consumerism and thus the ecological footprint of daily life

Understanding the dynamics of how analogs established in the past frame the widely accepted meaning of the following words, and how to engage students in the process of establishing analogs that are informed by the student's cultural background-- and informed by an awareness of ecologically sustainable practices and values. Students should be encouraged to

identify analogs that are consistent both the with root metaphor of ecology and their own cultural traditions.

1. Intelligence
2. Individualism
3. Freedom
4. Community
5. Tradition
6. Wealth
7. Environment
8. Ecology
9. Cultural commons
10. Environmental commons
11. Sustainable
12. Progress
13. Poverty
14. Subsistence
15. Conservatism
16. Liberalism
17. Globalization
18. Technology
19. Orality
20. Literacy
21. Wisdom

The explanation of how to identify the analogs that frame the current meaning of words shared by a wide segment of the mainstream culture, how to trace back in time the sources of the analogs that continue to frame the current meanings, how to identify the analogs of different cultural groups that have not been entirely assimilated into the mainstream culture, and how to assess whether the new analogs that are culturally informed lead to ecological thinking and behaviors, can be found in the chapter titled “Toward an Ecologically Sustainable Vocabulary” which is in the online book [Toward a Post-Industrial Consciousness](#).

