Essays on Ecologically Sustainable Educational Reforms

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# Chapter 1 Making the Transition from Individual to Ecological Intelligence: A Challenge Facing Curriculum Theorists

The problem today is that most of us have been educated in western style educational institutions and thus have been socialized to think and communicate in the metaphorical language framed by analogs settled upon by earlier western thinkers who were unaware of environmental limits. The combination of hubris and a deeply held prejudice toward indigenous cultures that had already developed ecological intelligence that enabled many of them to live within the limits and possibilities of their bioregion led western thinkers to take a different path into the future. As we can now recognize, this path has led to environmentally destructive technologies and the hyperconsumer dependent lifestyle now being globalized. Whether we have the time to develop a lifesustaining ecological intelligence will depend upon the length of time we have before the rate and scale of environmental changes embroil civil societies in wars of survival. It will also depend upon whether public school teachers and university professors have the will to recognize how the past continues the linguistic colonization of the present. Unfortunately, even if our educational institutions are able to socialize the next generations in how to exercise ecological intelligence in their daily lives, political power will remain in the hands of the older generations that still takes-forgranted the deep cultural assumptions that underlie the capitalist/industrial mode of consciousness. If we are to take Albert Einstein's warning seriously, namely that we cannot rely upon the same mind-set that created the problem to fix it, we need to begin thinking of how to exercise ecological intelligence and thus to move to a post-industrial form of consciousness. This will be an especially difficult challenge for curriculum theorists as most classroom teachers and university professors have been socialized to think in the metaphorical language that earlier thinkers succeeded in establishing as the basis of modern thought.

Before discussing some of the characteristics of ecological intelligence that will represent a special challenge for curriculum theorists it is necessary to identify the scale and scope of the ecological crises—especially since our technologies and economic systems are able to maintain the illusion for many people that this is still an era of plenitude and that, if there is a problem, it is that they do not have enough money to consume as much as can be produce. There are many dimensions of the ecological crises that are beginning to impact directly the lives of the middle class in many countries, and are already threatening the lives of several billions of people who are struggling to meet the basic necessities of life. These include the melting of glaciers that are the source of potable water, the spread of droughts, the changes in the chemistry of the world's oceans and the collapse of major fisheries, the disappearance of over thirty percent of the world's topsoil, the loss of forests that serve as carbon sinks, and the extinction of species. Other losses that usually do not make this kind of list include the loss of linguistic diversity and the loss of the intergenerational knowledge that sustain the diversity of the world's cultural commons. The latter two losses are especially important as they are sources of knowledge and skills that have enabled different cultures to live with a smaller carbon and toxic footprint. Today, these losses force more people to being dependent upon consumerism at a time when automation, outsourcing and downsizing by corporations in search of greater profits make it increasingly difficult to earn the money necessary for meeting basic needs.

The three interconnected areas we need to rethink if curriculum reforms are to contribute to making the transition to an ecological form of intelligence include the following. First, we need to learn to make the transition from thinking of intelligence as an attribute of the autonomous individual to understanding the characteristics of ecological intelligence, as well as how to reinforce them as part of the student's takenfor-granted pattern of thinking. Second, there needs to be wider understanding on the part of classroom teachers of how language carries forward the misconceptions and values of earlier thinkers who were unaware of environmental limits. Third, how to revitalize the cultural commons, as well as understanding how they are being undermined, need to become part of the curricula of public schools and universities. At the university level, the focus needs to be on the various cultural forces that are transforming what remains of the world's diversity of cultural commons into new markets. These forces include the destructive influence of western philosophers and social theorists who ignored environmental limits, denigrated other cultural ways of knowing, and the ecological importance of the cultural commons cultural (Bowers, 2007).

Often overlooked is how curriculum theorists reproduce the same misconceptions and silences found in the university's academic disciplines. As suggested earlier, reinforcing the idea that intelligence is an attribute of a potentially autonomous

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individual, that language is a conduit in a sender/receiver process of communication (a myth essential to representing data and information as objective and rationality as free of cultural influences), and the idea that critical thinking always leads to progress, are misconceptions that have been recycled from generation to generation of professors, including professors of curriculum theory. This recursive process, in turn, is carried on in school classrooms around the world. The silences perpetuated in academic disciplines, which in turn become the silences in curriculum and teacher education courses, include ignoring that most words are metaphors carry forward the misconceptions of earlier thinkers, ignoring that the local cultural commons existing in every culture represent alternatives to the consumer dependent lifestyle and the toxic footprint we are now recognizing as having immediate and long-term catastrophic consequences for all forms of life. These silences also include ignoring the various forms of ecological intelligence developed by indigenous cultures. While their mythopoetic narratives differed widely, none of them relied upon the Cartesian epistemology that made irrelevant the need to give close attention to the natural cycles occurring in local ecosystems and to learning the intergenerational knowledge and skills that enabled them to live within the limits and possibilities of the local environments.

There is also a problem with the legacy of how universities organize and passed on the knowledge within the different disciplines. Separating knowledge into categories such a history, political science, philosophy, science, and so forth, creates a problem that is now being recognized by national organizations, such as the American Association for Sustainability in Higher Education and the British Higher Education Academy, that are now promoting sustainable educational reforms across the disciplines. The major drawback they are attempting to rectify is the failure of faculty to adopt interdisciplinary approaches to addressing ecologically problematic cultural issues and practices. This remains an unaddressed challenge facing most curriculum theorists. Classroom teachers in various subject areas need to learn, for example, why the science teacher as well as the teachers in the social sciences and in English need to collaborate if students are to understand different aspects of the cultural commons, and how they have become enclosed—and the resulting environmental impacts. To cite a second example, few classroom science teachers understand the deep cultural assumptions they share with the market liberals, or how many of the technologies based on their research have contributed to the loss of intergenerational knowledge that has a smaller ecological footprint. As the metaphors framed by the analogs chosen by earlier thinkers are relied upon in every area of the curriculum, no one teacher can provide students with an understanding of how so many aspects of culture carry forward the misconceptions, prejudices, and silences takenfor-granted in the past.

The following summary of three specific curriculum reforms that need to be addressed if fostering ecological intelligence is to become a goal of education is intended to highlight the need for curriculum theorists to become aware of what Gregory Bateson refers to as an ecologically destructive cultural epistemology. As it has dominated the fields of curriculum and teacher education for generations many of its core assumptions will likely be taken-or-granted, and thus will be difficult to recognize as problematic — which brings us back to Einstein's warning about continuing to rely upon the same mindset to fix the problems it created. The following summary is also intended to provide an overview of the cultural, linguistic, historical, and philosophical areas of study that need to be examined in terms of how they have been complicit in the formation of the cultural roots of the ecological crisis. The summary represents only a starting point. The real work still lies ahead, and it can only contribute to an ecologically sustainable future if there is a willingness to put aside the formulaic progressive thinking that has led to overshooting environmental limits and to colonizing other cultures.

In the interest of brevity, I will summarize key ideas in three areas that must be addressed in thinking about educational reforms that foster ecological intelligence. My focus will be on the ecologically problematic cultural assumptions and linguistic patterns that are taken-for-granted by most classroom teachers and curriculum theorists, and not on the daunting challenge of how to get them to rethink the assumptions their academic careers are based upon.

**Fostering ecological intelligence:** The ancient Greek word *oikos* referred to a wide range of cultural practices in the household and community. It was only later that Ernst Haeckel (1834-1919) transformed it into the neologism "oecologie" that eventually became "ecology"—that is, the study of natural systems. We need to recover the ancient Greek understanding of learning the cultural patterns of moral reciprocity essential to

community—while also retaining the more contemporary understanding of the behavior of natural systems as ecologies. Both cultural and natural ecologies involve interdependent systems, where no organism or action exists on its own. Gregory Bateson refers to the changes circulating within different ecosystems, and within and between cultural and natural systems as the "difference which makes a difference" (1972, p. 315). These differences, or actions upon an action, can also be understood as the patterns that connect, which in turn lead to changes in other participants in the cultural and natural ecology. In short, ecological intelligence takes account of relationships, contexts as well as the impacts of ideas and behaviors on other members in the cultural and natural systems. Rachel Carson's recognition of the connections between the use of DDT and the decline in the local population of birds is an example of recognizing the patterns that connect. Many of her critics took-for-granted, that like other scientific discoveries, DDT was yet another expression of progress—which led them to ignore the impact on natural systems. The myth of progress, especially scientific-based progress, reinforced the takenfor-granted pattern of thinking that, in turn, led to ignoring the difference (introduction of a toxic pesticide) that makes a difference (the dying off of birds).

Ecological intelligence is what many indigenous cultures rely upon in order to adapt their cultural practices to the cycles of renewal in their bioregions. For example, the Quechua of the Peruvian Andes express ecological intelligence in their ability to observe what the changes in their environment are communicating about when and where they should plant their fields. Their ceremonies both re-enact the patterns of human/nature interdependence as well as give thanks for how nature nurtures them. Ecologicallyoriented scientists are now exercising a limited form of ecological intelligence as they study the energy flows and cycles of renewal. Social scientists also rely upon a limited form of ecological intelligence when they study the patterns that connect, such as how the patterns of discrimination and class differences impact the lives of people.

Ecological intelligence takes into account the interacting patterns, ranging from how behaviors ripple through the field of social relationships in ways that introduce changes that are ignored by non-ecological thinking, to how an individual's actions introduce changes in the energy flows and alter the patterns of interdependence within natural systems. When we pay attention to contexts, interactions, and the consequences that follow from these actions, we are also exercising ecological intelligence. Ecological intelligence is not something we have to create anew as it goes back to the form of intelligence exercised in hunter-gather cultures. They had their mythopoetic narratives, but their survival depended upon careful observation of the cycles and patterns in the environment—as well as the intergenerational knowledge they continually tested and refined.

Unfortunately, western philosophers from Plato to the present have largely denigrated this form of intelligence by representing rational, abstract and thus decontextualized thinking as having higher status (Bowers 2008). Over the centuries, ecological intelligence has been further undermined as the idea of the autonomous individual became accepted as the basis of the political and social justice systems in the West-and now as the source of ideas and values. The introduction of perspective by artists in the early 15<sup>th</sup> century helped to strengthen the cultural myth that privileged the individual as a separate onlooker on an external world, just as Rene Descartes further strengthened the myth of intelligence as separate from the cultural and natural ecologies that individuals interact with in ways that are too often ignored. Today, the myth of the autonomous individual is being reinforced by educators who urge students to construct their own ideas, and who promote computer-mediated learning on the grounds that it enables students to decide what they want to learn and value. Cell phones as well as many other cultural forces further undermine awareness of contexts, relationships, interdependencies, and the consequences of human behaviors that ripple through both cultural and environmental ecologies. Such taken-for-granted linguistic conventions as using the phrases "I think", "I want", and "what do you think?" continually reinforce the myth of not being part of the interdependent cultural and natural ecosystems, but rather being a separate observer, thinker, and actor.

What are the implications for curriculum theorists? The first would be to become more aware of how the taken-for-granted cultural assumptions influence, when the tacit basis of classroom discourse and curricular content, reinforce the idea that intelligence is an attribute of an autonomous individual. Special attention needs to be given to how the student may represent her/himself as being an autonomous observer, and source of originality and intentionality. As noted above, this assumption as well as many of today's other taken-for-granted cultural assumptions gave conceptual direction and moral legitimacy to the industrial/consumer culture that is now entering its digital phase of globalization. Other assumptions include the idea that change is an inherently progressive force, that this is a human-centered universe, that mechanism provides the best explanatory framework for understanding organic processes, that language is a conduit in a sender/receiver process of communication, that traditions limit the individual's freedom and self-discovery, that (still for some) patriarchy was part of the original creative process, and that free markets have the same standing as the law of gravity.

A second suggestion would be for participants in a learning situation to reinforce each other in giving closer attention to the cultural and environmental patterns that connect, to the consequences that follow from different behaviors, and whether these consequences have an empowering or detrimental effect on others-in both the cultural and natural systems. The subjectively-centered self is such a prominent tradition in mainstream western culture, even among artists and people searching for a deeper sense of meaning and purpose, that it needs to be discussed and, if possible, reframed in ways that take account of how an action affects the actions of others, including the natural systems, in ways that influence their development. A key to making the transition to ecological intelligence is recognizing that there are no isolated events, facts, actions—everything, as Bateson points out, is part of a larger system of information exchanges. One of the more difficult sources of resistance to obtaining this awareness is the way in which print, both in books and in computer-mediated communication and thinking, marginalizes the importance of contexts, tacit understandings, and awareness of the history of the larger network of relationships. Even when what is represented by the printed word is situated in terms of its history, the history is also an abstract construction that is unable to accurately represent the culturally mediated embodied experiences of participating in the cultural and natural ecology of an earlier time.

How language thinks us as we think within the possibilities made available by the language: Just as the cultural assumptions have led to thinking that individuals are basically autonomous beings (or have the potential to become autonomous), we also have a tradition of thinking of the other participants in these complex cultural and natural ecologies as being self-contained entities, such as a weed, a crime, a behavior, a value, an

idea, and even the printed word. The spoken word, on the other hand, makes it easier to recognize the different dimensions of the cultural ecology in which it occurs. Context, memory, reciprocal actions, tacit understandings, and immediate consequences are accessed through all the senses, and effect understandings and actions. Given the privileged status that the printed word has in public schools and universities, it is necessary to emphasize the importance of helping students to recognize that words are not autonomous entities into which teachers/professors, authors, and computer software writers put their meanings and then convey them to others.

Our educational institutions leave most graduates with the idea that language is a neutral conduit that enables ideas, objective data, and information to be passed to others. That is, most students graduate without understanding that most words are metaphors that carry forward the meanings framed by an earlier choice of analogs. Many of these analogs were chosen by *men* who were unaware of environmental limits, and who took for granted many of the cultural assumptions of their era. Recognizing that words have a history has important implications that are seldom considered. That is, they are part of a complex linguistic ecology that can be traced back to earlier narratives and evocative experiences. Thus, the use of such words and phrases as tradition, technology, property, data, intelligence, progress, critical thinking, and so forth, carry forward the way of thinking of earlier times—as well as the silences and prejudices that were taken for granted.

Overcoming this general lack of historical perspective suggests one of the ways curriculum theorists can foster ecological intelligence. Students need to be encouraged to examine the history of key words in the modern vocabulary that are contributing to undermining the intergenerational knowledge of the community, to the colonization of other cultures, and that lead to behaviors that further degrade the environment. For example, they need to consider the cultural context that influenced John Locke's analogies for understanding the right of individuals to own property, the early cultural basis for thinking of technology as a neutral tool, as well as the basis for thinking of traditions as obstructing progress and rational thought.

Ecological intelligence involves escaping from the linguistic colonization of the present by the past. To reiterate a key point: words have a history, and the word

conservative, when used as a category of political theory in the West, can be traced back to Edmund Burke who warned about the danger of basing changes on abstract (and supposedly universal) ideas, to Michael Oakeshott who explained how the rationalization of the work place de-skills the worker, to the authors of <u>The Federalist Papers</u> who justified the separation of powers, to contemporary environmental thinkers such as Aldo Leopold, Val Plumwood, Wendell Berry, and Vandana Shiva.

The word conservative carries forward many problematic interpretations of what should be conserved, such as free market systems and prejudicial traditions. The important point, however, is that the genealogy of political metaphors such as conservatism, liberalism, libertarianism, socialism, marxism, as well as the root metaphors that frame their respective agendas and silences, need to be examined in terms of their hidden forms of colonization. Given the global threat of corporate capitalism, which increasingly relies upon surveillance technologies and subverts democratic decision making, it is important to think ecologically about how to rectify the use of our political vocabulary that may otherwise lead people to equate the political slippery slope leading to the further enclosure of the diversity of the world's cultural commons with modern progress and development. What Naomi Klein documents in her recent book, The Shock Doctrine: The Rise of Disaster Capitalism (2007,) is a powerful example of how modern political metaphors hide the process of economic and cultural colonization. Ecological intelligence avoids accepting the authority of abstract words and theories by focusing on the how the consequences of policies effect the prospects of the other participants in the larger cultural ecology—as well as on the fate of the natural systems. How fostering ecological intelligence leads to revitalizing the local cultural **commons:** To reiterate, the way most educators accept basing relationships and values on the meaning of words that were framed by analogs selected hundreds of years ago becomes especially critical to whether we move to a post-industrial form of consciousness and community. Substituting the phrase "cultural and environmental commons" for what most people associate with the word *community* will help in making this transition. Even in its most positive use, the word community is too limited to convey the complexity of the cultural and natural ecologies that we are dependent upon. Stripped down to the simplest explanation, the cultural commons represents the

intergenerational knowledge, skills, and mentoring relationships that enable members to be more self-reliant in the areas of food, healing, creative arts, craft skills, narratives, ceremonies, civil liberties, and other aspects of daily life that are less dependent upon consumerism and participation in a money economy. Basically, it encompasses what is shared in common, which may also include traditions of exploitation and prejudice.

The word commons is now being used to refer to the cyber-commons, and its history in understanding the environment as a commons can be traced back to Roman law. The intergenerational knowledge and skills now being widely shared-- ranging from how to grow, prepare, and share a meal, how to discover talents and skills in a wide range of the arts, to the local efforts to make political decisions that protect the local cultural and environmental commons from being integrated into the supposedly free-market economy--have profoundly different consequences than what is experienced in a consumer dependent lifestyle. Curriculum reforms that contribute to revitalizing the cultural commons enable people to be less dependent upon a money economy that too often exploits both the most vulnerable people as well as the environment that future generations will depend upon. The intergenerational knowledge and skills that represent alternatives to the industrial mode of production and consumption also have a smaller carbon and toxic ecological footprint. Furthermore, strengthening of the local cultural commons leads to developing the skills and relationships that are the basis of mutual support. In short, these life sustaining forms of ecological intelligence will vary from culture to culture and from bioregion to bioregion. And like all empowering and skill sharing traditions, such as the slow food movement, that are carried forward by mentors, the cultural and environmental commons will continue to exist along with a more selective dependence upon modern technologies. The challenge for curriculum theorists, which is being made more daunting by the ideology that justifies greater reliance upon computer mediated learning, is to help students become aware of the forms of knowledge that take account of the limits and possibilities of the local bioregion, as well as patterns of mutual support that are essential to moving into the post-industrial era that we must enter if we are to avoid total ecological collapse.

The revitalization of local cultural commons occurring in different regions of the world, and is known in Great Britain as the transition communities (Hopkins, 2008),

involve mutually supportive intergenerationally connected relationships. These relationships, if examined in terms of specific activities and skill development, are not framed in terms of fostering more "individual self-direction", "independence", "emancipation" and "decolonization and reinhabitation". These words and phrases are based on the same deep cultural assumptions that lead to the kind of individualism required by the industrial/consumer-oriented culture. As these words and phrases have a special standing in the thinking of both market and social justice liberals, it is important to clarify how metaphors that are often associated with progress in achieving fuller individual lives may actually support the forces that lead to a consumer-dependent lifestyle. In <u>Rebels Against the Future</u> (1995), Kirkpatrick Sale notes that "it was the task of industrial society to destroy all...that 'community' implies-self-sufficiency, mutual aid, morality in the market place, stubborn tradition, regulation by custom, organic knowledge instead of mechanistic science...". He goes on to identify the connection often overlooked by curriculum theorists who emphasize the importance of individual emancipation: namely, that all the local cultural commons "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 without interference..." (1995, p. 38). In short, the industrial/consumer-oriented culture requires the further enclosure of the cultural commons and an educational system that hides the dynamics of how language, in carrying forward the analogs settled upon by earlier culturally specific thinkers, is part of this colonizing process.

The linguistic tradition of reproducing the conceptual errors of the past (in this case, the analogs settled upon by Enlightenment thinkers) can still be seen in how much of our thinking represents "traditions" as obstacles to progress and individual selfdiscovery. However, when we consider the traditions of organic gardening, of craft skills and knowledge, of the creative arts, of local decision making about how to protect civil liberties and the viability of the environmental commons, we find the traditions we reenact and modify in daily life are not impediments to progress. The exercise of ecological intelligence does not require thinking of progress as in opposition to traditions. Nor is the student's discovery of interests and development of talents undermined by the forms of intergenerational knowledge and skills that are the community-basis of mutual support.

If we consider most learning relationships, without succumbing to the meaning of words dictated by the ideology of various expressions of liberal/progressive thinking that have given us a mixed legacy of social justice achievements and the industrial/consumerdependent culture, we will find that traditions, intergenerational knowledge and skills, awareness of relationships and patterns of mutual support, the use of language that takes account of context and tacit understandings, and moments of dialogue, are integral to the students' pursuit of interests, questions, and desire to achieve at a deeper level of accomplishment. We need to continually think against the grain of today's formulaic thinking by keeping in mind that the western theorists who identified the analogs that now frame the meaning of such words as progress, individualism, freedom, emancipation, and so forth, were not aware of ecological limits. Their analogs reflected the advanced thinking of their era. Like the Roman god Janus, their vocabulary enabled us to make important gains in the area of correcting social injustices and in establishing a framework for civil liberties. Now curriculum theorists need to revise this vocabulary in ways that are culturally and ecologically informed. Words can then take on the meanings that reinforce the exercise of ecological intelligence, which requires becoming more ethnographically informed about the differences between the cultural patterns that strengthen traditions of community mutual support and those that adversely impact the viability of natural systems.

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# Chapter 2 The Limitations of the Daniel Goleman/Wal-Mart View of Ecological Intelligence

Daniel Goleman's sense of timing could not have been better. His most recent book, Ecological Intelligence: How knowing the Hidden Impacts of What We Buy Can <u>Change Everything</u>, has shot to the top of the best seller list. Perhaps more importantly, its central message has had an immediate impact on the largest retailer in the world. Wal-Mart has initiated a policy requiring its 100,000 suppliers to provide information on the carbon, toxic, and human impact that is part of the manufacturing process, which Wal-Mart will translate into a sustainability index that consumers can use as a guide. By basing its new marketing strategy on what Goleman calls the "total transparency" of the manufacturing process, Wal-Mart will be putting pressure on such competitors as Target and Costco. This will, in turn, force the smaller chain stores, and even community retailers, to display the sustainability index rating will become a key part of how the advertising industry pitches a product.

Granted, both the central message of Goleman's book and its implementation by Wal-Mart executives make an important contribution to correcting one of the basic limitations of our hyper-consumer lifestyle, which has exhibited an indifference to the environmental impacts at both ends of the process of production and disposal. However, the sub-title of his book should be taken as a warning that he has given his readers a very narrow way of thinking of ecological intelligence. Indeed, a case might be made that by equating the exercise of ecological intelligence with being informed by a life cycle assessment of the product's history, people may equate an expanded level of consumerism with being ecologically responsible citizens.

Goleman's narrow interpretation of ecological intelligence fails to address the cultural patterns of thinking and values that provided the conceptual direction and moral legitimacy to the industrial/consumer oriented culture that is rapidly overshooting the sustaining capacity of the earth's natural systems. Consumers may chose to take the life cycle assessment of a product or service into account in making their purchases, or they may not. In either case many of them will still be thinking of themselves as autonomous individuals who decide what they think and value, and what is to be ignored. They will continue to assume that change is a progressive life-force that has the same standing as the law of gravity, and that the natural environment is an exploitable resource (although this assumption is beginning to be questioned by some people). The idea of individual autonomy, which makes people more dependent upon consumerism, continues the pattern of ignoring how one's actions affect the well-being of others, and the natural systems upon which their lives depend upon. Evidence for this generalization can be found by observing how current fluctuations in the price of fuel, and not the size of the carbon footprint, influence the size of the vehicle they purchase. Furthermore, most Americans continue to assume that an expanding economy should be the nation's number one priority, and that the American individualistic/consumer-oriented lifestyle should be exported to other regions of the world. The problem with Goleman's reductionist interpretation of ecological intelligence is that it ignores that these individually-centered patterns of thinking will continue to co-exist with the new marketing strategy of Wal-Mart and the other major big box stores that will follow the same strategy.

Ecological intelligence, which is what enables indigenous cultures to survive without destroying the habitats they depend upon and which we practice in certain social settings, is far more complex. Indeed, it requires an understanding of the processes that are largely ignored by individuals who think they are making their own choices and thinking their own thoughts—and ignored by academics who assume that their reliance on the rational process and critical judgment provides an accurate account of the true nature of present and past relationships. Careful observation of daily life reveals how we are constantly interacting in complex and generally unrecognized cultural and natural ecologies. The actions (behaviors) of the participants in these ecologies affect the actions (behaviors) of the other participants. Gregory Bateson refers to these interacting patterns and relationships as the "difference which makes a difference", which the late French philosopher, Michel Foucualt, summed up as an "action upon an action". The failure to

recognize that all forms of life are nested in complex fields of interactive and thus mutually modifying relationships has led to a similar long-held mistake of thinking of plants, animals, people, rivers, forest, and so forth as distinct entities unaffected by the environment. One consequence of ignoring this reality is our sorry record of introducing non-native plants and animals into ecosystems where there are no predators that limit their growth. Bateson is suggesting that the exercise of ecological intelligence leads to an awareness of the ongoing changes in relationships and thus of how differences ranging from changes in the chemistry of plants and other organisms to differences circulating through the ever-changing patterns in human relationships. Individual intelligence, on the other hand, too often fails to observe these changes—partly because of pre-conceived ideas and self-identity issues. In effect, there are no autonomous entities and events except in our misguided inherited way of thinking.

For example, we are born into linguistic ecologies where the words we generally assume to refer to distinct entities and relationships are actually metaphors whose meanings were framed by analogies chosen by earlier thinkers who were unaware of environmental limits. What Goleman represents as the emancipated consumer does not take account of how many of the thoughts and values that individuals assume to be their own can be traced back to the patterns of thinking of earlier times and to specific cultures. The widely accepted meaning of words such as "tradition', "individualism", "progress", "community", intelligence", "woman", "wilderness", and so forth have a history, and when left unexamined tend to reproduce the misconceptions and silences of earlier times. The earlier biases and misconceptions associated with the words "woman" and "wilderness" have recently been questioned, with the result that their meanings are now framed by today's cultural norms and awareness of environmental degradation.

As we develop a better understanding of the nature and importance of practicing ecological intelligence, we will begin to recognize how relationships are improved as we pay attention to the differences that make a difference in a marriage relationship, with friends and others. Essentially, ecological intelligence takes account of the message being communicated in the change in the tone of voice and other patterns of non-verbal communication, in the changes that result from putting toxins in the local river, in the changes occurring in the chemistry of the world's oceans resulting from a consumer dependent lifestyle that is dumping billions of tons of carbon into the atmosphere and which is absorbed by the oceans. Just as ecological intelligence involves awareness of the history of interdependent relationships that have shaped our world, including awareness that words have a history and carry forward the misconceptions and silences of earlier thinkers, it also requires moral clarity about how our responses will affect the prospects of future generations. The indigenous practice of making decisions with the seventh generation in mind is an example of the more fully developed practice of ecological intelligence.

There is another major limitation in Goleman's representation of the nature of ecological intelligence. As he puts it, total transparency in the production of products and services will lead to a more informed consumer lifestyle. What this interpretation of ecological intelligence marginalizes are the many ways in which the local cultural commons are being revitalized by people who are engaging in activities that have their roots in intergenerational knowledge and skills that are less dependent upon consumerism and thus a money economy. The cultural commons vary from culture to culture and from community to community. They encompass a wide range of activities, skills, and relationships-ranging from the complex knowledge and skills associated with nonindustrial approaches to food, healing practices based on a knowledge of the medicinal characteristics of local plants, ceremonies and narratives, the many creative arts, the diversity of craft knowledge and skills working with wood, clay, metal, and so forth, to language itself and to the traditions of civil liberties and local decision making. Participating in the intergenerational renewal of different cultural commons traditions involves the exercise of ecological intelligence, as all the embodied senses are required in listening, observing, problem solving, exercising skills, and being open to learning from mentors who are carrying forward traditions in weaving, musical performance, preserving food, knowledge of the cycles of renewal in natural systems, social justice activities, and so forth. The primary connection between renewing the cultural commons and the exercise of ecological intelligence is that attention is given to the immediate context and to how taking responsibility for how relationships and activities continually impact the renewal of community and the life-sustaining natural systems. In effect, it involves mindfulness of which traditions carried forward from the past need to be renewed and

which need to be modified or abandoned completely. Bateson makes another point about the nature of ecological intelligence that is too often ignored by an individually-centered intelligence: namely, that the unit of survival is not the autonomous individual but the entire ecological system (both cultural and natural) that the individual is dependent upon.

By ignoring that participation in the local cultural commons reduces reliance on leading a consumer-dependent lifestyle, Goleman fails to recognize that the rapid degradation of natural systems, the changes occurring in industrial capitalism such as outsourcing to low wage regions of the world and increased automation, and the strife that will intensify as glacial sources of potable water and droughts become more widespread, will radically limit people's ability to purchase the products that Wal-Mart labels as having a smaller adverse ecological footprint. One of the consequences of these changes is that life-time employment is becoming a thing of the past for most people. Moreover, the past record of life-time employment in certain lines of work has led to a heavy dependence upon pharmaceutical products to sustain daily life, and to limiting the discovery of personal talents and skills outside of the cycle of work, consumerism, and debt-related psychological stress. This lifestyle can be traced back to the cultural myths about individual autonomy in thinking, values, and self-determination that are learned in public schools and universities—and promoted by politicians and the media that still have not awakened to the scale and rate of changes occurring in the world's natural ecosystems. The exercise of ecological intelligence also takes account of the connections between the local and the global, while avoiding the abstract thinking that is based upon key metaphors such as "freedom", "progress", and "individual self-determination".

In summary, understanding the many ways in which we already exercise ecological intelligence, even while holding to the myth of being autonomous individuals whose lives are separate from the fate of natural systems, as well as learning to be responsible for exercising a more conscious form of ecological intelligence, will be difficult. It will require making changes in our language so that the analogies that frame the current meaning of words in terms of earlier cultural expressions of intelligence are replaced by analogies that are culturally and ecologically informed. This, of course, will be a more difficult challenge than that of documenting the ecological impacts in the production of the 100,000 products that Wal-Mart will make available to customers.

# Chapter 3 Hidden Roots of Cultural Colonization in Teaching English as a Second Language

Two groups—English speakers and those who are learning English as a second language—now face a common threat. This is the ecological crisis that is impacting different regions and cultures in ways that vary from the melting of glaciers that are the source of water for hundreds of millions of people, to the drying up of aquifers, the collapse of local fisheries, the spread of droughts, the loss of forests, and the extinction of species that some scientists view as the early stage of entering the world's 6<sup>th</sup> extinction of life. Less often mentioned, but no less threatening, are the billions of pounds of chemicals, ranging from PCBs, dioxins, mercury, and pesticides--to cite only a few of the chemicals that have been put into the environment in the name of progress and profit. They can now be found in humans, the water supply, and in the plants and animals eaten around the world. The crisis has resulted in the poverty and hopelessness experienced by several billion people who are caught between the global spread of a money economy and the loss of their intergenerational knowledge that enabled previous generations to live a subsistence lifestyle within the limits and possibilities of their bioregion.

The focus here will be on how much of the vocabulary that frames the thinking and values of people in English speaking countries and, by extension, the thinking of people who are learning to think and communicate in English as a second language, contributes to deepening the ecological crises. The problem that goes unrecognized in English speaking countries is the linguistic colonization of the present by the past. For people learning to speak English as a second language, the problem is an even more complex process of cultural colonization. Linguistic colonization of the present by the past occurs in English speaking public schools and university classrooms, in the media, in the use of the Internet by English speakers, and in daily conversations when it is ignored that the meaning of words (metaphors) are framed by cultural assumptions that were taken-for-granted at an earlier time in the culture's development.

What is widely overlooked in English speaking settings where students are being socialized in how to think and communicate about different aspects of their culture, as

well as about other cultures, is that words have a history. The dominant message, as Michael Reddy pointed out in his pioneering essay, is that the educational processes as well as the everyday use of language, reinforces the idea that language is a conduit in a sender/receiver process of communication. In effect, the widely held assumption is that ideas, information, data, etc., can be put into words and then sent to others through the conduit of language (Reddy, 1979). This concept of language is important in maintaining several minor myths that have huge implications--for deepening the ecological crises and for contributing to the linguistic colonization of other cultures. First, the conduit view of language is essential to maintaining the myth that individuals are autonomous thinkers (or have the potential to become so). Second, this view of language supports the idea that the rational process is free of cultural influences. This myth also requires assuming that words have a universal meaning-- over time and for different cultures. The third myth is that there is such a thing as objective knowledge, information, and data. This myth hides the reality that observations and other ways of gathering "objective" information, data, and ideas involve a human observer who relies upon a culturally layered metaphorical language that has a history that is seldom recognized. These three myths, as well as the idea that language is a conduit, marginalize awareness that most words are metaphors. The idea that the analogs that frame the meaning of words are derived from the individual's embodied experiences, which George Lakoff and Mark Johnson refer to as the source of "embodied reason" (pp. 555), further marginalizes the awareness that words have a history, and that individuals are born into a community shared linguistic ecology that provides the initial cognitive schemata for interpreting the world, making value judgments, and that also influences the individual's embodied experiences (Lakoff and Johnson, 1999; Bowers, 2009).

Recognizing that words have a history should lead to the awareness of another fundamental characteristic of language. That is, most words are metaphors, and their meanings are framed by the process of analogic thinking. In 1885, Friedrich Nietzsche described the process of analogic thinking when he wrote "In *our* thought, the essential feature is fitting new material into old schemas..." (Kaufman, 1967, p. 273). That is, the initial understanding of what is new and thus unnamed is to identify what it is like, or what is similar. For example, in the early stage of developing computer technology there

was an awareness that computers "processed" data and information. Psychologists at that time also thought of human intelligence as processing information. This assumed similarity between computers and human thinking led to thinking of computers as devices that exhibited "artificial intelligence". As people became more accustomed to thinking of computers as exhibiting intelligence, it has become the new analog for understanding the brain as like a computer. Another example of analogic thinking is in a textbook that explains that genes are passed from one person to the next in the same way that footballs are passed—which is an analog that most young students understand. In yet another textbook the students' understanding of a crop of vegetables is introduced as the analog for understanding the life cycle of a forest. This analog leads to the basic misunderstanding that the main difference between farming the forest and a crop of vegetables is the time between when the two "crops" can be harvested.

This mapping of the familiar onto what is new may provide an initial basis for understanding, as long it is emphasized that the new and the already familiar are not represented as identical. What is often overlooked, however, is how the process of analogic thinking may involve ignoring that the differences are far more important than similarities. The dire consequences that may result from the choice of the wrong analogs can be seen in how President Ronald Reagan explained, in response to his critics, that an economy is like a game, and that the leader of the team does not change the plan in the fourth quarter. Both an economy and a game may be based on a plan, but the difference is that one can walk away from a game that is poorly played and quickly put it in the past. But one cannot walk away and put out of thought an economy that is out of control.

Understanding the new in terms of the already familiar should alert students to being aware that words have a history, and that they carry forward the assumptions, prejudices, and silences of the individuals or groups who established the analogs that subsequent individuals or generations accept as framing the meaning of words. As other aspects of metaphorical thinking are explained, including how this process is key to understanding the linguistic colonization of the present by the past, other examples of metaphorical thinking will be introduced—including how to reframe the meaning of words by introducing new analogs that are ecologically and culturally informed.

A key influence on the choice of analogies that frame and, over time, lead to the reframing the meaning of words, is the existence of what can be referred to as the root metaphors of the culture. The root metaphors in Western cultures, such as patriarchy, anthropocentrism (a human-centered world), individualism, progress, mechanism, and now evolution, have their origins in the mythopoetic narratives, powerful evocative experiences, and other forces in the culture's past and present experiences. Root metaphors provide the largely taken-for-granted interpretive frameworks that influence cultural ways of thinking and practices in a wide range of activities-- and over hundreds and even thousands of years. The vocabulary influenced by the root metaphor both reinforces its taken-for granted status while at the same time excluding words that undermine its conceptual coherence. For example, Johannes Kepler (1571-1630) suggested that instead of thinking of the universe as a divine organism it should be thought of as a giant clockwork. This mechanistic root metaphor continues to be the basis of thinking in the area of artificial intelligence and even taken-for-granted by important environmental thinkers such as E. O. Wilson who refers to the brain as a machine, and as a problem in engineering. The root metaphor of individualism started out as an image or iconic metaphor that changed over time from being associated with being a subject, to being a citizen, to being self-creating, to being autonomous. It has now become a root metaphor (interpretative framework) in the West that leads to a taken-forgranted understanding that individuals own property and ideas, to the current understanding that they that construct their own ideas and values (as some educators now claim), to possessing civil rights, and so forth.

This brief overview of the role of root metaphors, which are derived from the culture's mythopoetic accounts of the beginning, purpose, and processes of reality, is meant to bring into focus a key aspect of language that is overlooked when the culture's educational processes represent language as a neutral conduit. To restate a point made earlier, words have a history and in many instances the current meanings can be traced to an earlier period in the culture's history when people were responding to a different set of circumstances. That is, analogies that framed the meaning of words that are still takenfor-granted today were settled upon by influential thinkers who were attempting to establish how to think about the changes taking place in their times. John Locke, for

example lived during a time of transition in the traditional feudal system of land ownership. The analogy that became his legacy to Western cultures was to claim that private ownership of property is established through the person's labor. Adam Smith, who was concerned about the restrictions of the mercantile system on local farmers and businesses, argued for "free markets" and observed that members of his community were engaging in activities he described as "truck, barter, and trade". The analogs introduced by Smith and the French Physiocrats (who coined another metaphor, "laissez faire") reflected the community-based experience and thinking of that era. However, the local markets that served as the analogs for his economic theory were ignored by readers who succeeded in reifying and thus turning his metaphorically based theory into a universal truth that has the same status as the law of gravity. That is, the cultural context as well as assumptions and prejudices of Smith's era have been ignored by today's marketliberals who are working to globalize the layers of misunderstandings related to the idea of a free-market economy. To restate what is ignored when language is understood as a conduit in a sender/receiver process of communication: words are not objective representations of the real world, but are, as Nietzsche pointed out, metaphorically based interpretations of people who were responding to the needs of their times. Too often their responses to the challenges of their times involved a linguistic problem that Gregory Bateson has recently shed light upon.

If we engage in examining the origins of the analogs that are carried forward and continue to influence today's thinking, including the silences and prejudices, we would recognize what was referred to by Gregory Bateson as double bind thinking (1972). Conceptual and moral double binds result from relying upon earlier ways of thinking as the basis for addressing current issues and problems. Double bind thinking increases the likelihood that the metaphors inherited from earlier thinkers will prevent us from recognizing the deep conceptual roots of the ecological crises for the simple reason that these earlier thinkers took for granted many of the same root metaphors that gave conceptual direction and moral legitimacy to the industrial/individualistic/ consumer-dependent culture that is overshooting the sustaining capacity of the Earth's natural systems. Today, the major emphasis in addressing the ecological crisis is to rely upon technological solutions, which leaves these root metaphors unexamined. Thus, economic

growth is still seen as part of the solution to the crises of our times even though it further threatens the self-renewing capacity of natural systems.

More specific examples of double bind thinking for speakers of English occurs when they ignore that the analogs that frame the meaning of much of today's key words reproduce the prejudices, silences, and taken-for-granted deep cultural assumptions .of earlier thinkers. For example, the analogs for thinking of "technology" as both culturally neutral and as an expression of progress, of "tradition" as a source of individual oppression and a restriction on progress, of "wealth" as measured in material possessions and money, of "intelligence" as an attribute of the autonomous individual and a process that occurs in the brain, of "freedom" as a right of the individual that needs to be expanded without limits, of "community" from the anthropocentric perspective that excludes awareness of the animals and plants that share with humans the same physical space, of "literacy" as representing a more advanced stage of cultural development, and so on, have all been influenced by different combinations of the West's dominant root metaphors that were taken-for-granted in the past—and are still taken-for-granted by the majority of today's speakers of English.

As we begin to recognize that both cultures and natural systems can be understood as ecologies (which means expanding the meaning of the word beyond how Ernst Haeckel reduced the Greek word *oikos* in 1866 to mean the study of natural systems) the above metaphors, as well as many other English words (metaphors) take on profoundly different meanings. For example, both cultural and natural ecologies have a history and face the challenge of surviving into the future. Given this understanding, culturally and ecologically informed analogs that frame the meaning of the word "tradition" no longer reproduce the Enlightenment thinkers' way of thinking of traditions as privileging small groups over others and of standing in the way of progress and rational thought. Similarly, if we understand cultural and natural ecologies in terms of information circulating through the interdependent systems, and of the patterns that connect within and between both ecologies, it becomes clear that the old analogs for understanding "intelligence", "freedom", "individualism" and so forth, need to be radically revised. These context free metaphors were derived from the abstract theories of western philosophers and theorists who ignored other cultural ways of knowing as well as the cultural influences on their own thinking (Bowers, 2007). We also need to take account of what Bateson refers to as the unit of survival—which takes account of how the individual is nested in the cultural ecology that is simultaneously nested in the natural ecology.

As many non-English speaking cultures are facing the impact of global warming and other forms of environmental degradation that have far more severe consequences than what is being experienced in western countries, the problem of linguistic colonization of the present by the past becomes an even greater challenge where English is being adopted as a second language—and in some instances, as the primary language for relying upon western technologies and for participating in the global economy. If English words such as "development", "modernization", "market", "progress", "state", "science", "poverty", and so forth, are taught as though they represent different universal possibilities, in the same way that gravity is understood as universal reality, then the colonization of the present by past influential English speakers is being ignored. That is, if students learning the meaning of English words do not question the current appropriateness of the analogs settled upon at earlier stages in the development of English speaking cultures, they will be undergoing the worst case scenario of linguistic colonization.

If the English vocabulary were informed by analogs derived from a deep understanding of the differences in the world's cultural ecologies as well as the natural ecologies, the linguistic colonization associated with learning English would not be so life threatening. But it would still be a form of linguistic and thus cultural colonization. Given the thousands of years it has taken to revise the analogs as well as the underlying root metaphors for such English words as "environment" and "woman", which are still not widely adopted in English speaking countries, it is not likely that other key metaphors in the English vocabulary will be revised in ways that avoid the double bind that Albert Einstein warned about when he observed that we cannot rely upon the same mindset to fix the problem that it created.

There are a number of other important issues connected with learning English as a second language. One of the issues relates to learning English from a printed source. As Walter Ong and others have pointed out, print-based communication alters consciousness

in fundamental ways (Ong, 1982; Muhlhausler, 1996). The form of cultural colonization that occurs when print-based communication is relied upon, such as in computermediated learning, is that print reproduces many of the characteristics of a conduit view of language, including how it hides that words have a culturally specific history as well as how but it reinforces a taken-for-granted attitude toward abstract thinking. The printed word, whether appearing in a book or on a computer screen, marginalizes the importance of local contexts, tacit understandings, and the patterns of meta-communication that are integral to spoken English. It also marginalizes the importance of personal memory of identity forming narratives and relationships with mentors and others who nurture and model how to participate in the largely non-monetized intergenerational commons—which, in most cultures, have a smaller ecological footprint. In short, printbased approaches to learning English contribute to the reification of the analogs settled upon by earlier thinkers, thus making it difficult for the first-time learner to question them.

There is another issue that arises when English is being learned as a second language. As local communities in English speaking countries are rediscovering the intergenerational knowledge, skills, and practices that represent alternatives to the industrial/individualistic/consumer dependent lifestyle that has such an adverse impact on the environment, there is beginning to be a change in the analogs that frame the meaning of such words as tradition, individualism, freedom, community, intelligence, progress, and so forth. For example, associating tradition with learning how to preserve vegetables as well as the daily practices of the older generation that are less reliant upon increasingly scarce sources of energy and water means that the Enlightenment derived analogs that represented tradition as an obstacle to progress are less taken-for-granted today. Similarly, the old analogs that represented all forms of change, especially in the area of technology and in the development of new markets and consumer goods, as the expression of progress are also being increasingly questioned as people are beginning ask what traditions of community self-reliance are being overturned. The old analogs that framed the meaning of individualism, freedom, and community are also beginning to be questioned as the emerging root metaphor of ecology becomes more widely understood

as the explanatory framework for understanding the interdependence between cultural and natural systems.

The key point is that if the teachers of English as a second language are unaware that the ecological crises is causing fundamental linguistic changes among a small yet growing segment of the population in English speaking countries they may be teaching their students to adopt the meaning of words framed by the earlier analogs that are now being questioned and modified in way that take account of how to live more ecologically sustainable lives. Changes in the root metaphors of patriarchy, anthropocentrism, and even mechanism, which framed the meaning of much of English vocabulary that still justifies economic and cultural colonization, are beginning to be revised as the explanatory power of new root metaphors such as evolution and ecology are recognized as more relevant to meeting today's challenges. In effect, the emerging analogs that are reframing the meaning of words are being contested by reactionary groups still holding onto the assumptions that underlie the industrial/individualistic/consumer-dependent lifestyle, and the old analogs are being challenged by social groups who are beginning to exercise ecological intelligence that is informed about the interdependencies of cultural and natural systems. The linguistic changes occurring in English speaking countries that are resulting from the growing awareness of the cultural roots of the ecological crisis means that teaching English cannot be separated from helping students understand how linguistic changes mirror the contending political and economic forces in English speaking countries.

There is a third issue that needs to be addressed in teaching English as a second language. That is, not only is there a need to introduce students to how the different ways in which key words are being contested and revised in English speaking countries, students also need to be encouraged to consider how the old analogs that framed the meaning of English words would, if accepted as the way everyday reality should be understood, undermine traditions that the students think essential to their own selfidentity and sense of community self-reliance. They should also be encouraged to question whether the new ecologically informed analogs that are changing the meaning of English words have implications for rethinking the historically constituted analogs that underlie their own vocabulary. Do the historically constituted analogs that frame the meaning of key words in their own language take account of such challenges as the ecological crisis that earlier influential thinkers were unaware of?

Following Ivan Illich's suggestion, Wolfgang Sachs published a series of essays by Third World writers who examined how adopting the still dominant English meaning of such words as "development", "progress", "markets", "needs", "poverty", and so on would introduce fundamental changes in local ways of thinking and practices. The collection of essays, titled <u>The Development Dictionary: A Guide to Knowledge as</u> <u>Power (1992)</u>, provides a model of what also needs to be included in teaching English. Escaping from the subtle and complex ways in which linguistic colonization occurs can only be achieved by questioning the cultural assumptions taken-for-granted by earlier influential thinkers who established the analogs for judging what represents "developed" and "modern" cultures, and what cultures are to be viewed as undeveloped and backward. The ecologically informed analogs are reframing the meaning of words of these colonizing words by foregrounding the importance of such words and phrases as "ecologically sustainable", "eco-justice", and "local knowledge".

As the linguistic colonization of the present by the past is not unique to English, the need to conserve ecologically sustainable cultural practices is closely related to the need to conserve the diversity of the world's languages. This will require greater awareness that words are metaphors, that they have a history, and that the analogs that frame their meaning are derived from mythopoetic narratives and powerful evocative experiences that underlie culturally specific assumptions that are too often taken for granted. Whether classroom teachers and university professors can avoid relying upon the conduit view of language that marginalizes the awareness that most words are metaphors that often carry forward the misconceptions, prejudices, and silences of earlier generations will be a challenge that must be met if we are to avoid the double bind that Bateson and Einstein identified.

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# Chapter 4 Reflections on Teaching the Course "Curriculum Reform in an Era of Global Warming

In the summer of 2009 I taught a course for students who were in the last stage of their masters program. I titled it "Curriculum Reform in an Era of Global Warming", which should have left no doubts as to what the focus would be. Twenty-four students representing different subject areas signed up for the five week course. Years of listening to students and faculty in teacher education programs discuss the ideas of prominent thinkers in the field led me to conclude that the survey approach fails to provide an indepth understanding of the importance and limitations of the ideas of educational theorists and the issues they addressed. The survey courses too often leave students with little more than a few phrases and concepts of such theorists such as John Dewey, Paulo

Freire, Peter McLaren, and Nel Noddings, but little understanding of the cultural/ecological issues they did not address. I was determined to avoid turning the course on curriculum reform in an era of global warming into a survey that would leave students with little more than the sound bites of progressive and, now, "sustainability" thinking.

The following overview of the course, as well as the list of readings that were the focus of class discussions, clearly indicated that we were going to engage in an in-depth examination of the different ways in which the teacher, in a variety of subject areas, could introduce reforms that would support the efforts of grass roots community groups as well as political leaders who are attempting to reduce the human impact on natural systems. The following is the syllabus that served as the conceptual roadmap for the course.

### **TED 610** Curriculum Reform in an Era of Global Warming (Corrected version)

Instructor: Chet bowers June 22-July 24 Peterson 103 8:00-10:00am

### **Overview of Course:**

In taking Albert Einstein's observation seriously that the same mind-set that created the problem cannot be relied upon to fix it, this course will have four main foci. **First**, it will reframe the current approaches to thinking about curriculum reform in ways that take account of cultural patterns of thinking and relationships that contribute to a smaller ecological footprint. Special attention will be given to what teachers need to understand about how the language in the curriculum and in classroom discussions often reproduces the misconceptions of an earlier era when environmental limits were not understood. How to help students recognize when it is important to reframe the meaning of words in ways that are culturally and ecologically informed will also be given attention. **Second**, attention will be given to how curriculum reform can help students recognize the connections between a consumer dependent lifestyle and the deepening ecological crises. The nature and ecological importance of the local cultural commons (the

intergenerational knowledge, skills, and mentoring relationships that are less dependent upon consumerism) will also be considered, as well as the teacher's role in helping students become more aware of the differences in their personal development and the ecological impact as they move between the relationships and activities within the local cultural commons and settings where they are consumers. **Third**, attention will be given to what students need to understand about how computer mediated learning contributes to a smaller ecological footprint within certain contexts as well as how it undermines the local cultural commons. How to incorporate into the curriculum an understanding of the cultural transforming characteristics of computers will also be addressed. **Fourth**, attention will be given to how to explain the nature of ecological intelligence, as well as how to exercise it in daily experience.

### **Course Evaluation**:

As one of the purposes of the course is learning to recognize in existing curriculum materials patterns of thinking that reinforce the ecologically unsustainable industrial/consumer oriented paradigm, students will be asked to write two short papers that are based on a critical examination of existing curriculum materials—which may include a software program. The final will take the form of a collaborative project that leads to the development of curriculum materials that are informed by the issues discussed in the class—and that can be used by public school teachers.

**Readings posted as online** can be accessed by Googling C. A. Bowers for articles and the Ecojustice Press.

#### Schedule of Topic and Readings: (Each session met for two hours)

Session 1 Introduction to themes of the course

Session 2 Scientific reports on different aspects of the ecological crises
 Read: L. Brown, Plan B 3.0: <u>Mobilizing to Save Civilization</u>, pp. 48-84
 P & A Shabecoff, <u>Poisoned Profits: The Toxic Assault on Our Children</u>, pp. 43-48

Session 3 An example of how market forces transform community traditions of selfsufficiency—lessons for classroom teachers Video: "Ancient Futures: Learning from Ladakh"

Session 4 Ignoring the smaller ecological footprint found in local communities—both rural and urban

Read: A. Gore, An Inconvenient Truth, pp. 305-323

C. Bowers, Online book, <u>Toward a Post-Industrial Consciousness</u>, Ch. 6 "Revitalizing the Cultural Commons in an Era of Political and Ecological Uncertainties"

Session 5 Do the ideas of Dewey and Freire contribute to addressing the ecological crises?

Read: J. Dewey, Democracy and Education, pp. 49-62

P. Freire, Pedagogy of the Oppressed, pp. 57-77

C. Bowers, Online book, <u>Transitions</u>.... Ch. 10 "Rethinking Social Justice Issues Within an Eco-Justice Conceptual/Moral Framework"

Session 6 Curricular implications of understanding how language carries forward the misconceptions of earlier thinkers who were unaware of ecological limits

Read: C. Bowers, Online book, <u>Toward a Post-Industrial Consciousness</u> Ch. 3 "The Linguistic Colonization of the Present by the Past"

C. Bowers, Online book, <u>Toward a Post-Industrial Consciousness</u>, Ch. 7 "Toward an Ecologically Sustainable Vocabulary"

Session 7 Continued discussion of language issues in the curriculum

**Session 8** Language issues that marginalize awareness of the intergenerational knowledge and skills that have a smaller ecological footprint and reduce dependence upon a money economy.

Read: E. Shils, Tradition "In the Grip of the Past" pp. 34-67

A, Gouldner, <u>The Future of Intellectuals and the Rise of a New Class</u>, pp. 28-29 (handout)

Session 9 The nature and educational implications of ecological intelligence

Read: G. Bateson, Steps to an Ecology of Mind, pp. 316-320

C. Bowers, Online book, <u>Educating for Ecological Intelligence</u>, Ch. 2 "Educational Reforms that Foster Ecological Intelligence"

Session 10 Continued discussion of how to explain and demonstrate ecological intelligence

Session 11 Curricular issues related to introducing students to their cultural commons Read: C. Bowers, Online book, <u>Transforming Environmental Education</u> Ch. 4, "The Classroom Practice of Commons Education"

Session 12 Curricular approaches to introducing students to the different forms of enclosure of the cultural commons

Read: W. Ong, <u>Orality and Literacy</u>, pp. 30-77 N. Klein, <u>The Shock Doctrine</u>, pp. 3-22

Session 13 Curriculum models that enable students to recognize different forms of enclosure Read: Online readings to be assigned

Session 14 The issue of language again: the ecological implications of using Orwellian political language

Read: D. Brooks, "The Long Voyage Home" (handout)
G. Lakoff, <u>Don't Think of an Elephant</u>, pp. 3-34
C. Bowers, Online book, <u>Transitions</u>.... Ch. 8 The Double Bind of

Environmentalists Who Identify Themselves as Liberals"

\*\*\*\*\*\* Bring your laptops to this session\*\*\*\*\*\*

Session 15 The political context of commons education Read: C. Bowers, Online book, <u>Transforming Environmental Education</u>, Ch. 5

Session 16 Curricular importance of "thick description" of students' embodied/culturally mediated experience and the teacher's role as a cultural mediator

Read: C. Geertz, The Interpretation of Culture. Pp. 5-17

C. Bowers, Online book, <u>Toward a Post-Industrial Consciousness</u>, Appendix: "Handbook on how to introduce cultural commons and ecojustice issues into the curriculum"

Session 17 Introducing students to the cultural colonizing characteristics of computers Read: C. Bowers, "The Janus Machine: How Computers Contribute to the Enclosure of the Cultural Commons" In the online journal, <u>Language and Ecology</u>, Vol. 2, No. 2

Session 18 Review of key concepts and how they can be introduced in the curriculum—and into discussions with colleagues

Sessions 19-21 Student in-class presentations of model curricula, and discussion of pedagogical issues

### **Establishing the Key Priorities and a Conceptual Framework**

I made several assumptions that were proven correct during the first few meetings of the class. The first was that most of the students' previous classes were focused on social justice issues, but that these issues were framed in terms of middle class values and thus did not take account of the social changes that the deepening ecological crisis is already bringing about. The other assumption was that most of their educational and discipline-based courses reinforced many of the deep cultural assumptions that were established before there was any awareness of environmental limits—including misleading assumptions that marginalized awareness of the role that language plays in the social construction of what is taken to be reality. In effect, I would be challenging them to think against the grain of many cultural orthodoxies that are widely shared by nearly all classroom teachers and university professors.

The first readings were intended to be a wake-up call about the nature and extent of the ecological crisis. In addition to the chapters from Lester Brown's book, which documented changes taking place in different ecosystems such as glaciers and aquifers, and from <u>Poisoned Profits</u> on the widespread effects of the industrially produced toxins that are causing cancers and abnormal physical and mental developments, I asked them to view the Nova program titled "Extreme Ice." Observing how scientists were measuring the rate at which major glaciers in Alaska and Iceland were melting and moving into the sea seemed to make an impact. But it was momentary. This was primarily because the students, in spite of their personal sense of being financially limited, interacted daily in the natural and built environment of Eugene that continues to communicate the plenitude of a consumer society. That the Earth's natural systems are being severely stressed is not evident in Eugene! Nevertheless, the brief introduction to what scientists are documenting about climate change and the other forms of environmental degradation served as a reference point that I kept referring to throughout the course.

The other reference point was established by showing the video based on Helena Norbert-Hodge's book, which was also the title of the video "Ancient Futures: Learning from Ladakh". This documentary of the transition from a largely commons-centered community lifestyle that was intergenerationally connected and sustained by patterns of local decision making and mutual support to a western style of existence marked by greater dependence upon a money economy, manufactured products, and a growing sense of individualism served throughout the course as a concrete example of the ecological and community destructive nature of the industrial market system

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of production and consumption. Stressed was the point that the many examples of cultural commons practices in Ladakh should not lead to thinking of the cultural commons as only existing in Third World cultures. Rather, the important insights to be taken from the documentary are the ways in which the cultural commons, which differ from culture to culture, are being undermined by the economic and technological forces of enclosure. It was further emphasized that the enclosure (transformation) of the cultural commons, which exists in both rural and urban settings, magnifies the ecological footprint of the industrial/consumer-dependent lifestyle as well as contributes to the loss of local decision-making and to the loss of patterns of mutual support within communities. If these points had not been emphasized some students were likely to interpret the subsequent discussions of how to engage students in learning about their local cultural commons as an effort to revert back to an earlier period of cultural development, instead of recognizing that cultures that have taken different pathways to development are facing the same pressures of being integrated into a global market economy.

As Al Gore's film was still being discussed in the media, students were assigned the last chapter of his book, An Inconvenient Truth, which listed changes in behaviors that would reduce the pressures on global warming. His list of ecologically sustainable behaviors, which mostly involved changes in consumer behaviors, was then juxtaposed with an in-depth discussion of the characteristics of the local cultural commons. The chapter, "Revitalizing the Cultural Commons in an Era of Political and Ecological Uncertainties, provided an overview of the various cultural commons activities (that is, largely non-monetized activities) that can be found in all communities. Important to this broader and more in-depth discussion was the introduction of how awareness of the participation in various activities of the local cultural commons goes unrecognized because of the nature of taken-for-granted patterns of thinking and behavior. This was followed by a discussion of how the emphasis on print-based thinking and communication, which are reinforced by the media as well as by the high status accorded to print in public schools and universities, marginalizes awareness of contexts and tacit understandings—both essential to understanding how daily life is dependent upon the intergenerational knowledge and skills of the local cultural commons. The chapter lists the diversity of cultural commons activities, ranging from the preparation and sharing of food to protesting the loss of civil liberties and the gains made by previous social justice movements. Two issues were stressed in the discussion of the complexity of the cultural commons and the forces of enclosure. The first related to how to integrate learning about the diversity of cultural commons
activities in the students' community. The second issue related to how the lack of awareness of the different aspects of the local cultural commons, and of their community and ecological significance, leads to not resisting their integration into the market economy—which is accompanied by the loss of local decision making. This part of the discussion laid the basis for the later discussion of the teacher's mediating role in helping students develop the communicative competence necessary for deciding which aspects of the cultural commons need to be reformed or abandoned entirely, which aspects of the industrial/consumer-dependent culture should be carried forward, and which forms of enclosure need to be resisted. The broader issue of how to educate for an ecologically sustainable future was continually mentioned as a way of framing the discussion.

The readings and discussions of the cultural commons, and the type of individualism that the industrial/consumer-oriented culture requires, set the framework for a brief discussion of the ideas of John Dewey and Paulo Freire. Their key ideas were introduced for two reasons. The first was that most of the students had already encountered a largely non-critical presentation in their other professional courses. The second reason was that the previous discussion of the cultural commons provided an ethnographically informed framework for recognizing how key assumptions underlying the thinking of Dewey and Freire, when introduced into other cultures, support the process of colonization that undermines the local cultural commons-thus leading to the emancipated form of individualism that lacks the skills and mutual support system that make personal survival dependent upon consumerism. The following was emphasized in the discussion of the ideas of Dewey and Freire: (1) both were Social Darwinian thinkers who assumed that there are three stages of human and cultural development and that their approach to knowledge represented the most evolved stage; (2) both failed to understand the complex nature of socialization, including how their own ideas were based on the assumptions of European Enlightenment thinkers; (3) both misunderstood the complex nature of traditions and how they varied from culture to culture — thus, they were unable to recognize how the intergenerational knowledge and skills that sustained the cultural commons represented sources of resistance to unrestrained market capitalism; (4) both ignored how modernization was contributing to the environmental degradation of their times-with Freire ignoring the vast outpouring of concern about the deepening ecological crisis until just before his death. In this section of the course, special attention was given to the difficulty students have in recognizing these limitations when they share many of the same assumptions that Dewey and Freire

took for granted—and when they learn about these two educational reformers from professors who also share the same assumptions.

The point emphasized about Dewey and Freire not understanding the dynamics of cultural reproduction and thus of being little help in providing teachers with a key part of what should be their professional knowledge led to the next topic: the curricular and pedagogical implications of understanding how language carries forward the misconceptions and silences of earlier thinkers who were unaware of environmental limits. Students were assigned two readings from my online book, <u>Toward a Post-Industrial Consciousness: Understanding the Linguistic Basis of an Ecologically</u> <u>Sustainable Future</u>. Following the reading of "The Linguistic Colonization of the Present by the Past", the following issues were the focus of a discussion of teacher decision-making about whether the language of the curriculum was reinforcing the patterns of thinking of earlier culturally specific eras when there was no understanding of environmental limits and other cultural ways of knowing.

- 1. How to understand that most words are metaphors.
- How the choice of analogs by earlier thinkers and the influence of earlier events continues to frame the current meaning of words—such as freedom, individualism, progress, tradition, markets, and so on.
- That words (metaphors) have a history and thus may carry forward misconceptions and silences of earlier thinkers who were influenced by the cultural assumptions of their era.
- 4. That interpretative frameworks that organized social life over hundreds of years, influence behaviors and values, and marginalize awareness of aspects of experience, are based on root metaphors. Root metaphors such as patriarchy, human-centeredness, individualism, mechanism, progress, etc., illuminate certain ways of understanding while hiding other possibilities.
- 5. That it is possible, indeed necessary in light of the ecological crisis, to reframe the meaning of much of the modernizing vocabulary by identifying analogs that are culturally and ecologically informed—words such as progress, individualism, intelligence, community, technology, poverty, wealth, etc..
- 6. That the analogs based on the culture's understanding of the attributes and thus the meaning of words such as woman, weed, wilderness, uncivilized, resource, and so forth carry forward how moral behavior is governed by the

cultural understanding of the attributes of the other—person, plant, and physical environment.

Students were also asked to read the chapter titled "Toward an Ecologically Sustainable Vocabulary" which was used as the basis for a discussion of how teachers could encourage students to examine the history of words, including the cultural events and ideas that led to the earlier choice of analogs for such words (metaphors) such as woman, technology, tradition, property, individualism, nature, progress, wealth, and so forth. Students were also asked to consider how they would go about incorporating into the curriculum at different grade levels the examples presented in the chapter on how many of the words (metaphors) in today's modernizing curriculum could be reframed by the choice of analogs that reflect an awareness of differences in cultural traditions and that supported an ecologically sustainable lifestyle. There was also a discussion of how the examples of reframing the meaning of commonly used metaphors reflected my own takenfor-granted cultural experiences and assumptions, and how taking account of other cultural ways of knowing could lead to the choice of different analogs—thus avoiding the problem of linguistic colonization where the analogs from the dominant culture are used to frame the meaning of English words that are expressed in other languages—such as development, individualism, tradition, community, and so forth.

The discussion of the metaphorical nature of language and thinking was continually grounded through the use of examples from textbooks, educational software programs, and by giving close attention to the discourse in classrooms. That most students in the class had been reinforced for years to assume that language is a conduit in a sender/receiver process of communication, it was necessary to provide many examples of how root metaphors served as taken-for-granted interpretative frameworks, and how these interpretative frameworks are highly useful in understanding certain aspects of experience, and how they also marginalize the ability to understand other areas. It was suggested that one of the ways to introduce their students to the influence of root metaphors that had their origins in the distant past, and how they continue to reproduce earlier ways of understanding (many of which are still useful in certain contexts), was to have students identify the vocabulary excluded by different root metaphors—and thus how the excluded vocabulary marginalized awareness of other issues and possibilities They were asked to consider the vocabulary that is excluded when mechanism, individualism, progress, patriarchy, evolution, and ecology are the root metaphors that serve as taken-for-granted interpretative frameworks. As in all the previous discussions about how language carries forward earlier ways of thinking, as well as the values of the culture, attention was given to determining when students possess the necessary background of experience for connecting the classroom discussions with their own experience. Indeed, the point was emphasized that the students' languaging processes should be used as examples, and that the most effective way of doing this was to have them reflect on words whose meanings (analogs) they take-for-granted, and how giving attention to different aspects of their culturally mediated embodied experiences leads to recognizing how the language that still carries forward earlier ways of thinking marginalizes awareness of different aspects of their present experience.

Several class sessions were devoted to this part of the teacher's professional knowledge, which is largely ignored in most of their other courses. As the simple idea that the language in the curriculum has a history, and that it carries forward patterns of thinking that continue to undermine the development of ecological intelligence that is needed if we are to slow the rate of environmental degradation, it nevertheless was so radically different from thinking that students construct their own ideas, that the rational process is free of cultural influences, and that there is such a thing as objective data and information, devoting two class session served only as an introduction. The following class sessions, which were focused on different issues, involved making the connections to these language issues.

The readings from Edward Shils' book <u>Tradition</u>, and the short selection from Alvin Gouldner's <u>The Future of Intellectual and the Rise of a New Class</u> provided a transition to a different set of language and thus cultural issues. As many of the cultural mainstream teachers have been socialized to think of traditions essentially as holidays and that other traditions, following the Enlightenment derived analogs, are impediments to individual self-realization and progress, Edward Shils' ethnographically based overview of the traditions that are largely part of our taken-for-granted experience provided these future teachers with the culturally grounded vocabulary necessary for challenging the current emphasis on change and progress that marginalizes an awareness of the local cultural commons. For the members of the class who were being socialized in their other professional courses to adopt the critical pedagogy emphasis on equating the promotion of critical thinking with continual change (which they assume always to be progressive in nature), it was particularly important to introduce examples of how so many aspects of their taken-for-granted experience, as well as the cultural practices they are aware of, are based on the intergenerational knowledge, skills, and practices (traditions) carried forward from the past.

Introducing these future teachers to a more complex understanding that traditions represent the history of a culture, and thus are not always shared by other cultures, provided them with the vocabulary necessary for helping students recognize their own taken-for-granted traditions—and, more importantly, to being open to considering the forms of intergenerational knowledge and skills that would enable them to live less consumer dependent lives and to reduce their ecological footprint. The critical pedagogy view of tradition, which is based on an non-critical acceptance of the Enlightenment derived analogs that have framed the meaning of tradition for hundreds of years and has been used to justify the cultural colonization of other groups, leaves teachers with a limited and thus distorted vocabulary for introducing their students to the many ways traditions are misunderstood-including the ecological and political implications of these misunderstandings. The point was emphasized that if students were socialized to view traditions as impediments to progress they would lack the more complex understandings essential for distinguishing between what needs to be conserved and what needs be changed. This part of the course also provided the conceptual basis for the subsequent discussion of the nature of ecological intelligence and how to reinforce it through a community-centered and historically and ecologically informed curriculum.

Before taking on this complex and radically different view of intelligence, the class was asked to read a short selection from Alvin Gouldner's book that focused on two critically important issues: the pattern of discourse that has been accorded high-status by academics and their students, and the ways in which print-based storage and communication reinforces abstract thinking and the taken-for-granted practice of assuming that the printed word has a universal meaning. The discussion of the "culture of critical discourse" brought out not only the rules that govern speech considered by the promoters of high status knowledge to be worthy of attention, and thus the patterns of discourse that are marginalized as not legitimate—which are mostly the discourse patterns of oral cultures. Also discussed was how these rules have been the basis for cultural colonization. The discussion of privileging print-based thinking and cultural storage led, in turn, to a discussion of the difference between oral cultures and to the role of face-to-face communication in sustaining the cultural commons. The discussion of the differences, which vary from culture to culture, between print-based thinking and communication and oral based thinking and communication brought out another aspect of cultural reproduction that teachers need to understand in order to help their students become aware of the differences. These differences are of major importance, as the distinction between literacy and illiteracy has been a primary way of distinguishing between modern cultural and traditional ("backward") cultures. This distinction, in turn, has been used to colonize and thus exploit cultures represented as backward and thus in need of modernization ("colonization"). By representing oral cultures as backward, the possibility that they have taken different approaches to developing ecological intelligence that enabled them to live within the limits and possibilities of their bioregions has been ignored. Also discussed was how the long tradition of privileging print over the spoken word has contributed to the widespread indifference to the rapid disappearance of many of the world's languages. These languages have not only served as storehouses of intergenerational knowledge of local ecosystem but also as examples of diverse cultural approaches to exercising ecological intelligence.

The next topic in the course focused on how to understand the nature and importance of ecological intelligence and how to foster it in the various community contexts in which teachers would find themselves. The earlier discussions about how the language of the curriculum carries forward earlier ecologically uninformed patterns of thinking provided the core ideas for beginning to think about the nature of ecological intelligence. The tradition of western philosophy and political/economic theories going back to Plato, and reinforced in the writings of such current philosophers as Leo Strauss, Richard Rorty, and Mark Johnson--and by educational theorists ranging from Freire to Jean Piaget and Howard Gardner-- has been based on the assumption that the individual is the basic social unit. This generalization, the students were told, should not be interpreted to mean that throughout western history there has been only one way of thinking about the nature and prospects of the individual. Indeed, in the feudal era the individual was understood as a subject, and in the writings of Locke, Rousseau, and John Stuart Mill the individual was represented as having political agency. The German romantics saw the individual as a source of creativity—while many of today's educators (particularly in North America) view individuals as oppressed if they are not constructing their own ideas and values. While few students in the class possessed this historical understanding of the different ways individualism has been understood in theWest, they nevertheless had been socialized for years to the idea that society is made up of individuals, and that their task is to contribute to the greater autonomy and thus self-direction of the student.

Today, this view of the individual is taken-for-granted by vast numbers of people who possess only a surface knowledge of current political and environmental issues, and whose limited knowledge too often has been derived from media demagogues—yet assume that their judgments are beyond questioning. In spite of how widespread this phenomenon has become, the students in the class initially did not question whether promoting the idea that individuals should construct their own ideas might be contributing to undermining the democratic process itself. The class was asked to consider whether the emphasis on individual autonomy too often leads to ignoring that democratic decision making is predicated on citizens possessing a deep knowledge of the issues and a capacity to engage in a far ranging discussion that is mindful of the need to conserve previous gains in social justice and of what contributes to an ecologically sustainable future. If I teach the course again, I will use the current widespread indifference to basing political judgments on an in-depth knowledge of the issues as an example of double bind thinking, and point out that today's anti-intellectualism and friend/enemy approach to politics cannot be accounted for in terms of a missing or defective gene, and therefore must be accounted for in terms of the miseducation that occurs in the home, school, and the media.

Laying the conceptual basis for understanding the nature of ecological intelligence, and why classroom teachers should help students recover the capacity to think of themselves in terms of the quality of their relationships with others, including the natural systems they are nested in, is one of the most difficult and unrecognized challenges facing teacher educators. I introduced the idea of ecological intelligence by having the students read a short selection from Gregory Bateson's <u>Steps to an Ecology of</u> <u>Mind</u> and the chapter I wrote titled "Educating for Ecological Intelligence" which had been influenced by several key ideas derived from Bateson's explanation of how both humans and non-human participants in the cultural and natural ecosystems respond to the information conveyed through the changes in the patterns that connect—ranging from the genetic level to changes in behaviors in plants, animals, and humans—even in the larger systems such as changes in their habitats. One of Bateson's distinctive contributions to understanding the layered and interactive nature of ecosystems of which cultures are a part, and thus to understanding the nature of ecological intelligence, was to point out that the sources of information circulating through an ecosystem and between different interacting ecosystems are the differences which make a difference.

Following Bateson's basic insight, differences were explained as basic units of information that we respond to, unless our cultural ways of thinking condition us to ignore them—such as being oriented to the importance of our subjective feelings and ideas or being cut off from what we could learn from our senses because we are engaged in texting and cell phone communication with others. The most easily understood examples include how differences in the non-verbal patterns of communication are the differences that make a real difference in how relationships are understood and responded to, and how we give attention to the differences which make a difference when driving in traffic. A quote from Gary Snyder brings out how in the natural world differences make a difference in the response of other beings:

The world is watching: one cannot walk through a meadow or forest without a ripple of report spreading from one's passage. The thrush darts back, the jay squalls, the beetle scuttles under the grasses, and the signal is passed along. The information passed through the system is intelligence. <u>The Practice of the Wild</u>, p. 19.

What Snyder refers to as "information" are the differences which make a difference—and what he calls "intelligence" are the responses to the differences (changes in the behavior ) in the relationships that move through the system.

Bateson's point is that while we are socialized to think in terms of the Cartesian pattern that separates the individual from the world being acted upon (the mind/body separation), but in reality the differences taking place in the environment we are interacting with affect our responses—even when we continue to think that we are acting on a world that is non-intelligent (that is, incapable of responding to the information flowing through the local ecosystem). As Bateson put it, the unit of intelligence is the individual plus the environment. He goes on to explain that the unit of survival is not the rational and autonomous individual but the system as a whole.

The challenge in this part of the course was to provide examples that the teachers could use in their own classrooms to help students recognize that their everyday experiences always involve relationships and the patterns that reflect how different systems are self-sustaining while being part of larger systems. I also pointed out that the emphasis on print based thinking, as well as other technologically based sources of abstract thinking, have the effect of reinforcing an attitude of indifference toward the information we receive through the senses. Our senses are especially attuned to being aware of the changes circulating throughout the cultural and natural ecosystems. I emphasized here that if the students are unaware of the multiple pathways of communication that connect them with the cultural and natural ecologies in which they are nested, they are unlikely to be aware of whether their responses have a constructive or destructive impact on the other participants in the interacting systems. In effect, being unaware is a difference that will have an impact on the other participants and systems that make up the web of life. For example, we are just becoming aware of the consequences of our collective state of indifference to the billions of tons of carbon dioxide that have been absorbed by the world's oceans are changing the chemistry of the water, which is a difference that is making a difference in the viability of the ocean's food chain-which, in turn, is beginning to make a difference in the protein that people rely upon. The "ripple" effect, to use Snyder's metaphor, will make a difference at the genetic level of the child's physical and mental development.

The following was briefly introduced as a way of helping teachers recognize how they might be obstructing or reinforcing the students' ability to exercise ecological intelligence.

## (A) Ways in which ecological intelligence is undermined:

- Reinforcing the idea that the student should seek to be more autonomous which occurs when students are encouraged to construct their own knowledge and values.
- 2. Reinforcing the pattern of thinking that represents plants, animals, people, events, data, and so forth as independent entities.
- Reinforcing the idea that change is inherently progressive in nature, and that critical thinking is the engine of change.
- 4. Reinforcing the idea that the individual is an independent thinker, observer, and source of action on an external environment (the Cartesian mind/body separation).
- Reinforcing the idea that traditions obstruct progress, that competition leads to the best ideas and plans of action, and that science and technology will solve all environmental problems.
- 6. Reinforcing the idea that words refer to real things and events, and can be universally generalized-- and that there is such a thing as objective knowledge and data.

#### (B) Ways in which the exercise of ecological intelligence is reinforced:

- Encouraging students to recognize that life sustaining processes always involve relationships, including how ideas, values, events, behaviors, policy decisions and so forth are embedded in and influence interacting cultural and natural systems. The "difference which makes a difference" that Bateson says represents a basic unit of information is another way of saying that relationships are an inescapable aspect of life forming and sustaining processes. The nature of the relationships may also be driven by what he refers to as an ecology of bad or life destroying ideas and values.
- 2. Encouraging students to recognize that the language they take for granted is part of a linguistic ecology—that words have a history and that not

recognizing this may lead to relying upon earlier ways of thinking that provided the conceptual basis for the Industrial Revolution that has now entered the digital phase of globalization. There is also a need to encourage students to identify culturally and ecologically informed analogs that will reframe the meaning of words and thus the students' ability to consciously recognize the relationships that are ecologically unsustainable as well as those that are.

- Encouraging students to recognize how abstract thinking marginalizes the need to give attention to the immediate context—and the patterns within different cultural and natural systems that connect.
- 4. Encouraging students to recognize that critical thinking has a role to play in the exercise of ecological intelligence. It should take into account both of what needs to be intergenerationally renewed and what needs to be radically changed. Students should be encouraged to examine how critical thinking is also used by corporations and other groups who want to advance their interests over what represents the common good.
- Encouraging students to consider the differences between oral and print based forms of cultural storage and communication—especially how these differences take account of local cultural and natural systems contexts.
- 6. Encouraging students to shift from thinking of themselves as autonomous actors and observers of an external social and environmental world to basing their self-identity on how their relationships contribute to the well-being of others in both the cultural and natural ecologies they are embedded in.

The point was made that the way to keep these issues in mind is to give close attention to the language in the curriculum and in classroom discussions. It was also emphasized that these two sessions on ecological intelligence represented only an introduction, and that by giving attention to mentoring relationships they would gain a better understanding of the role that moral reciprocity plays in exercising ecological intelligence.

In moving to another set of curricular and pedagogical issues, this time expanding on the earlier introduction to how the local cultural commons needs to become part of the curriculum, the focus was shifted to how to engage students in communitycentered activities that represent in many instances the daily practice of ecological intelligence. This generalization is qualified by the phrase "in most instances" as there are examples of the cultural commons that carry forward prejudices and forms of exploitation. In the earlier discussions of the cultural commons the point was made that students should not be given a romanticized view that glosses over the need to exercise critical thought about which aspects of the intergenerational knowledge and skills not only meet today's social justice standards but also reduce people's dependence upon consumerism and the seemingly endless treadmill of trying to escape the consequences of going into debt in an era when lifetime employment can no longer be taken for granted.

The readings for the next three meetings of the class included the chapter titled "The Classroom practice of Commons Education", the chapter from Walter Ong's Orality and Literacy, and a chapter from Naomi Klein's The Shock Doctrine. The readings focused on practical suggestions for how to integrate the local cultural commons into the curriculum—both in terms of learning about and participating in the cultural commons. Also discussed was how to understand the teacher's mediating role in helping students become explicitly aware of the range of differences between their experiences in different cultural commons activities and their experiences in the consumer/industrial production areas of culture. Why I continually referred to the commons rather than community was clarified in the discussion of how to introduce students to the different forms of enclosure of the cultural and environmental commons. The word community is usually used in a manner that does not bring out the tension between what is shared in common and the market and ideological forces that undermine the common good. While none of the readings addressed directly the social justice issues, this was the part of the course that provided ecologically and culturally informed ways of meeting on the local level what Franklin D. Roosevelt called the Second Bill of Rights, which was presented as part of his State of the Union Address in 1944. Social justice issues largely revolve around issues of discrimination which lead to being caught in the cycle of poverty, limited opportunities in the areas of employment, housing, education, and activities related to the development of talents and skills. These limitations were what the Second Bill of Rights was intended to rectify. Given the global changes in ecosystems and corporate controlled

economic/technological developments that undermine the possibility of achieving the social justice agenda outlined by President Roosevelt, the strategy that seems to have the most promise is the revitalization of the cultural and natural commons.

Before engaging students in a discussion of how to integrate the cultural commons into the curriculum, it was necessary to provide an overview of the different forms of intergenerational knowledge and skills, ranging from food and healing practices to the creative arts and civil liberties (that is, all aspects of community that are less dependent upon the market economy and that meet current social justice standards). There were several points that needed special emphasis: (1) that automation and outsourcing were leading to fundamental changes in the economy that would lead to high levels of unemployment and that would make part- time employment the new norm; (2) that participating in different areas of the cultural commons leads to the development of personal skills, interests, and sense of community. This, in turn, should lead to a different understanding of wealth—thus helping to break the industrial induced addiction to consumerism and associating wealth with the amount of money that one accumulates; (3) that while there would still be a need for an income, participating in the local cultural commons would also lead to meeting needs through the less-monetized economy of the commons.; (4) that changing from a consumer-dependent to a community-centered lifestyle of mutual support and engagement would have a smaller adverse impact on the natural environment. It was also emphasized that addressing social justice issues in a way that focused on the individual and her/his need to become an equal participant in the middle class consumer lifestyle would not meet the need for community, for developing talents and skills valued by others in the community—and would certainly not slow the rate of environmental degradation already affecting hundreds of millions of lives.

The following suggestions for how to integrate the cultural commons into the curriculum were discussed.

 Introducing the cultural commons must include descriptions of the various local activities, how they are culturally diverse, and how they are being enclosed—which can lead to in-depth analysis of modern forces that are market oriented and driven by misconceptions and silences in the educational process.

- 2. The students introduction should also be experientially based—where they are encouraged to do auto-ethnographies of their own cultural commons experiences, as well as engage in surveys of the largely non-monetized activities and relationships in the community. Participating in these groups will lead to mentoring relationships that will contribute to students acquiring many of the competencies that Rolf Jucker has identified as essential to an ecologically sustainable future. (Available at <rolf.jucker@sub-fee,ch>)
- 3. The approach should be based on a phenomenological description of culturally embodied experiences rather than on print based descriptions. It is more a matter of identifying mentors, the complexity and interdependency of social networks,, as well as making explicit the student's experience of community when involved in different areas of cultural commons.
- 4. Helping students become explicitly aware of the differences in their culturally embodied experiences (including discovering interests, developing talents, participating in community supportive relationships) as they move between engagement in some area of the cultural commons and in a monetized work setting is essential to developing the language necessary for clarifying the differences and for exercising communicative competence in resisting further forms of enclosure.
- 5. Teachers need to understand their mediating role in helping students become explicitly aware of the difference between their experience in the cultural commons and in monetized relationships. This involves knowing what questions to ask students about the taken-for-granted nature of their experiences. It also involves not prescribing what the students should think before the relationships and ecological impacts have been fully explored—hopefully, this may lead students to recognize aspects of the scientific/industrial culture that are making positive contributions to humankind and to living more ecologically sustainable lives.
- 6. Creating close alliances with different groups engaged in sustaining different aspects of the cultural commons will help to provide mentoring relationships that will contribute to the students' competencies.

While each of these suggestions deserved a more in-depth discussion than allowed by the time constraints of the course, special attention was given to what is involved in being a cultural mediator who helps students make explicit what is not otherwise recognized as they move seamlessly from cultural commons to market/consumer experiences. Special attention was given to how to help students recognize what they otherwise take-for-granted, and to helping them to give voice to these differences—which in turn leads to their acquiring the vocabulary necessary for exercising communicative competence in resisting various forms of enclosure. The problem of how to avoid turning the teacher's cultural mediating role into a process of indoctrination was discussed, as were the different forms of enclosure. The enclosure (transformation) by market forces was introduced in Klein's chapter, and the ways in which print-based thinking, and how it differs from the oral communication so central to the intergenerational renewal of the cultural commons was, introduced in the chapter from Ong's book.

In the session on how the Orwellian use of political language now dominates the American political scene began with most of the students in the class identifying themselves as liberals. They had not considered that the people widely mislabeled as conservatives are actually in the market liberal tradition that is chiefly responsible for transforming both the cultural and environmental commons into new market opportunities, and are the primary sources of resistance to addressing the ecological crisis. The reading of David Brooks' article presented an Edmund Burke interpretation of conservatism that is consistent with the values and practices of the cultural commons, and that is also consistent with the environmental/community conservatism of Wendell Berry. Reading the key chapter in Lakoff's book, <u>Don't Think of an Elephant</u>, provided an example of how the failure to recognize that words, including political terms, have a history that can lead to confused and thus ecologically problematic thinking.

Given that there are many people who still deny that there is an ecological crisis, it was thought necessary to engage the class in a discussion of how a commons-approach to curriculum reform might be viewed by different groups in the community. One of the chief characteristics of participating in the cultural commons, by its very nature, limits the need to be a consumer—of fuel, processed food, the latest style of clothes, the newest computer-based technologies, drugs and medical services, commercialized sources of entertainment, and so forth. The local chamber of commerce, as well as other members of the community whose lives depend upon "growing" the local economy and who are already aware that their economic world is changing in ways they are unprepared for, may claim that integrating the cultural commons into the curriculum, helping students clarify the ecological as well as differences in personal experiences between cultural commons and consumer based experiences, are examples of socialist or even communist indoctrination.

What is brought out in the chapter from the online book, <u>Transforming</u> <u>Environmental Education</u>, is that as teachers involve the mentors who carry forward various cultural commons traditions they are building an important base of community support. The people who are passing on skills and mentoring students in various activities will recognize that the commons-oriented curriculum is not a form of indoctrination to a foreign ideology. A second recommendation was also discussed, which was the need for teachers to become informed about the environmental groups in the community, including the various churches that are beginning to promote the idea of environmental stewardship and ecologically informed activities in the community. In effect, the best way for teachers to protect themselves is to establish close working relationships with community members who are actively strengthening what Robert Putnam refers to as "social capital" and which I prefer to call "cultural wealth".

As it is difficult to become aware of the traditions of culture that are a taken-forgranted aspect of daily experience, I decided it would be important for the students to read Clifford Geertz's description of "thick description" as it addresses directly what is often missing from the teacher's professional preparation. We discussed how difficult it is for teachers to recognize their own taken-for-granted beliefs and practices, and the pedagogical pitfalls that need to be avoided when helping students give voice to the cultural patterns they were socialized to accept as part of their taken-for-granted world. One of the points that was probably not emphasized enough is how the teacher's mediating role needs to avoid reinforcing the idea of individual autonomy. The process of making explicit the layers of taken-for-granted cultural assumptions and linguistic reproductions of past ways of thinking provides an opportunity for the teacher to bring to the attention of students how much of their embodied experience is culturally influenced.

The last segment of the course returned to the question of what teachers need to understand about the differences between orality and literacy. As the schools in which they will be employed have largely adopted computer-mediated learning as the way to improve educational "outcomes", the class discussed the differences between orality and literacy by considering whether computer-mediated learning fosters or inhibits the development of ecological intelligence—which is dependent upon face-to-face communication rather than the abstract patterns of thinking reinforced by computers. The list of issues included the following:

- 1. Computer mediated thinking and communication reinforce the conduit view (the sender/receiver) view of language. Thus, computer mediated thinking makes it difficult to recognize that words are metaphors, and that they have a history rooted in specific cultural ways of thinking that can be traced to the past. The current idea being promoted in many countries is that students should use computers as the primary resource for constructing their own knowledge. This approach to educational reform ignores that the culture/metaphor/thought connections are hidden by the conduit view of language (the sender/receiver pattern of communication) that computers reinforce.
- The educational uses of computers, as well as in other settings, involve the encounter of the user (e.g. the student) with the mind of the people who wrote the program. It is not an encounter with an objective representation of some aspect of "reality".
- 3. Only explicit forms of knowledge can be digitized—and these will reflect the interpretive framework of the observer. That is, the aspects of cultural experience that are taken for granted, as well as tacit understandings and the lived context of human with human, and human relationships with the natural environment, cannot be digitized. Even videos are unable to represent personal memory, taken for granted patterns of thinking, and other internal

states of consciousness. In a twist in the Cartesian mind/body separation, the visual and audio dimensions of experience that can be digitized are limited to the aspects of embodied experience that are accessible to the outside observer, which will be influenced in turn by the assumptions that the observer brings to the relationship. What the outside observer cannot digitize are the internal states of consciousness—including the Other's way of thinking of self-identity.

- 4. Computer mediated learning and communication carries forward the gains and losses associated with the tradition of print-based storage and communication. Like other uses of print, computers reinforce abstract thinking and communication, which leads to assuming that print-based representations of reality can be generalized across cultures.
- 5. Educational software programs are based on the taken for granted patterns of thinking of the people who create them—and often reinforce the assumptions that further impede the process of relational thinking that is an aspect of ecological intelligence.
- 6. There are many positive ways in which computers can be used: to map green spaces in the community, represent energy and toxic flows in the environment, and connect members of the community who are engaged in sustaining the local cultural commons.

Instead of having students write a final paper, they were asked to work in groups and to develop examples of model curricula that were informed by the ideas they encountered in the readings and class discussion.

#### Concluding Observations:

What was distinctive about the course was the focus on educational reforms that begin to address the deep cultural roots of the ecological crisis—with the major focus being on how the language of the curriculum too often carries forward the earlier deep cultural assumptions and analogs that provided conceptual direction to the industrial/consumer/individualistic lifestyle that is rapidly degrading the self-renewing capacity of natural systems. The other major focus was on how the existence of the local cultural commons provides part of the answer of how to rebuild community while at the same time reducing our carbon and toxic footprint. I avoided taking the students on a tour of other approaches to curriculum reform that fail to address the connections between the ecological crises and the need to revitalize the mutual support systems within communities. A number of key ideas were introduced in ways that are likely to guide the teachers' classroom decisions. Hopefully, the students in the class will remember the following: that the language in the curriculum is largely metaphorical and has a history, that there is a connection between individualism, consumerism, and the ecological crisis, and that promoting ecological intelligence requires becoming aware of the many ways that individualism is reinforced in the classroom and in the dominant culture generally—and that ecological intelligence involves, in part, giving close attention to interactive patterns within local contexts, I say hopefully, as the prior socialization by their professional and non-professional-oriented professors, as well as the socialization to the taken-for-granted culture of the school in which they will find themselves, have a powerful reality shaping influence. If students taking this class introduce these reform proposals into their own classes, engage other teachers in a discussion of the language, cultural commons and ecological intelligence issues, and involve members of the community in discussions about the deep cultural changes that must be undertaken then the class will have been a success.

# Chapter 5 University Curriculum Reforms that Revitalize the Cultural Commons

The good news is that an increasing number of faculty are addressing environmental issues in their classes, research, and publications. There is now the possibility of students reaching beyond the traditional boundaries of their disciplinary major by cobbling together a specialization in environmental history, environmental ethics, eco-criticism, and so forth. Students in the sciences are even more focused on studying the changes occurring in different ecosystems. These are positive developments, but the environmentally oriented faculty in the social sciences and humanities, on the whole, still occupy a marginal position within their respective departments. Furthermore, they have had little influence on the more traditional conceptual orientations of their colleagues. That is, most students continue to be socialized to think within the traditions of inquiry and knowledge accumulation that were based on cultural assumptions that did not, and still do not, take account of the ecological crisis.

The bad news is that the study of environmental issues from the perspective of the social sciences and humanities, as well as from the sciences, does not provide students with the knowledge and values that enable them to recognize the cultural alternatives to living a less consumer and technology dependent lifestyle. They may be more aware of the need to recycle some of the throw-away products of the mainstream industrial culture, and of the need to purchase more energy efficient technologies. But even here, personal economics considerations may be more responsible for this limited practice of environmental stewardship than what they learned in their environmentally oriented classes. Indeed, many people who have not gone to the university are responding to the same economic forces that lead to purchasing more energy efficient washers, cars, air conditioners, and so forth.

One the whole, the environmentally-oriented students join the vast majority of university graduates who are happily dependent upon the industrial approach to health care, processed food, entertainment, and leisure activities. In addition, the core cultural assumptions that influence their thinking and values are unlikely to be reconciled with the environmental issues and values they encountered in the few classes that had an environmental focus. These are sweeping generalizations, but their accuracy can be assessed by asking even those with majors that have an environmental focus what they understand about the nature of the commons. They should also be asked about the contemporary forms of enclosure of the commons, as well as how these forms of enclosure impact natural systems. Questioning them about these areas of understanding, as well as about how various technologies are undermining the intergenerational knowledge the enable people to live less environmentally destructive lives, will lead to recognizing other silences in their university education. These silences will include for most students such basic understandings as the limits of scientific knowledge as well as how science differs from scientism. These silences are will also responsible for the indifference that now accompanies the misuse of the political language of conservatism and liberalism. Even students who identify with the values expressed in the writings of Wendell Berry, Vandana Shiva, and Aldo Leopold still identify themselves as liberals-even though the industrial culture that is degrading the environment is based on liberal assumptions that

can be traced back to John Locke, Adam Smith, John Stuart Mill, Herbert Spencer, and to such recent economic theorists such as Milton Friedman.

The silences, which will be revealed by asking the above questions that most environmentally-oriented students will respond to with a blank stare (or with the formulaic thinking that characterize the majority of university graduates) suggests the direction that the reform of the university curriculum should take. The reforms that are now necessary are not being suggested on the basis of a preferred ideological orientation, but are required by the fundamental changes now occurring in the Earth's ecosystems, by recent technological developments that are contributing to the global spread of poverty, and by the growing influence of market liberalism in globalizing a consumer and technology dependent lifestyle. Global warming, now recognized as contributing to reducing the yield of rice and other staple crops, as well as other cultural developments that are contributing to the depletion of the world's fisheries, the growing scarcity of potable water, and the spread of deserts and the loss of topsoil, are now affecting daily experience in a way that seemingly abstract scientific reports did not.

The development of new technologies are having a similar disrupting impact, leading many people to question for the first time the long-held myth that the continual quest to create new technologies is the best guarantee for increasing their material security and overall well-being. Outsourcing and the development of hi-tech knowledge centers, particularly in India and China, are simply the latest manifestation of an ideology that seeks to replace workers (and the health and retirement expenses that affect the corporations bottom line) with computer driven machines. An additional reason that the university curriculum must be reformed is that the globalization of the West's industrial culture is undermining the diversity of the world's languages and knowledge systems that are the repositories of how to live within the limits and possibilities of local ecosystems. In effect, economic and technological globalization are undermining the diversity of cultural knowledge systems that, in many instances, place more emphasis on mutual support systems within communities and on keeping the market in better balance with other cultural practices.

In light of these accelerating global changes it might seem foolish to suggest that addressing the silences in the university graduate's education may represent an effective way of slowing and perhaps even reversing the trends that are putting our future at risk. The evidence suggests that the eco-management approach in the environmental sciences, and the limited environmental perspective acquired in the social sciences and humanities, fail to introduce students to the traditions of thinking and living that can be traced back to the origins of humankind. Perhaps it's the professors's bias against introducing students to something as ancient as the commons that accounts for their silences. But the silences have the effect of preventing students from recognizing in terms of their own cultural approach to community the taken-for-granted non-monetized activities, patterns of mutual support and intergenerational knowledge that represent the everyday alternatives to the increasingly degrading impact of a consumer and technology driven culture.

The commons, as historically understood and as they exists today in a more attenuated condition, represent the aspects of the physical environment and symbolic world that are shared in common—that is, shared in the sense that it has not been privatized and monetized. For example, the air we breath, the water we drink, the forests and fisheries we depend upon, and the topsoil we rely upon, are still part of the commons—just as the language, narratives, artistic traditions, food preparation, civil liberties, and so forth were and still are part of the commons. All of these aspects of the commons are being rapidly enclosed. That is, they are being privatized by individuals and corporations—and thus becoming increasingly unavailable to those who do not have the means to participate in a money economy. The idea that labor is returned rather than paid represents an example of the commons that still exists in many parts of the nonindustrialized world. Equating labor with being paid represents just one of the modern expressions of enclosure. Similarly, in the modern world the privatization of the municipal water systems (including other municipal systems) is also an example of enclosure—as is the patenting of gene lines and the extending the law governing copyright to everything communicated over the internet. To cite yet another example, Monsanto's ownership of genetically altered seeds is leading to the enclosure of the intergenerational knowledge of farmers.

The biases in both universities and public schools against studying the traditions of different cultures that have a smaller ecological impact leave students vulnerable to the consciousness shaping power of the media which continually promotes the importance of

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relying upon expert knowledge and the market as the source of happiness and way of communicating their social status and success. The importance of intergenerational knowledge, which varies from culture to culture, to attaining greater personal and community-centered self-sufficiency in such areas as food preparation, health care, entertainment, craft knowledge, and traditions of moral reciprocity and civil rights are thus being ignored.

The emphasis in universities and public schools on becoming a self-directing individual who possesses the skills and forms of knowledge required for life in a consumer and technology dependent culture leads to an equally serious omission and distorted way of thinking. That is, the liberal assumptions that equate critical reflection with living a more emancipated and progressive existence lead to overlooking the many approaches to knowledge and intergenerational renewal that are essential to sustaining the commons. Equating critical reflection with changes that, in formulaic fashion, are assumed to be progressive in nature leads to overlooking that critical reflection should also help clarify which traditions should be conserved and built upon. For example, the traditions of habeas corpus, separation of church and state, an independent judiciary, legal protection of workers, environmental legislation, trial by a jury of peers, craft knowledge, mentors and cultural elders, are just a few of the traditions of the commons in the West that are now being threatened by the growing dominance of market liberalism. Indeed, there are few university professors and public school teachers who have their students examine how the critical reflection and the cultural assumptions that lead to viewing it as the one true source of knowledge are also the basis of technological innovation and the current process of economic and technological globalization. Critical reflection, along with other approaches to knowledge, are essential to the traditions of local democracy that are now being undermined by the modern forms of enclosure. Unfortunately, current criticisms of globalization, which some students are now encountering, do not go far enough if they omit an examination of the connections between the current misuse of our political language and the enclosure of the commons.

The reforms that needs to be undertaken by university faculty, and that hopefully will filter down to the public schools, involves a double bind that needs to be recognized and overcome. That is, the revitalization of the world's diverse commons are one of the

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few alternatives to the destructive impact of economic globalization now being promoted by the market liberals that now control national governments and institutions such as the World Bank and the World Trade Organization. The double bind is rooted in the liberal orientation of university professor that leads, in turn, to the ignorance and silences about the importance of the commons for achieving a more ecologically sustainable future. This double bind is likely to influence how the following recommendations for reform are viewed—and to whether they will be entirely ignored.

The following questions should guide the focus of inquiry in a number of disciplines. They include: (1) What are the general characteristics of the commons that are shared by different cultures? (2) How do Western science, technology, and neo-liberal policies undermine (enclose) the world's diverse commons? (3) To what extent do the commons still exist within the students' home communities? (4) What are the connections between the enclosure of the symbolic and natural commons and the spread of poverty? (5) How does the enclosure of the commons undermine conserving biodiversity? (6) What is the history of ideas in the West that have legitimated the enclosure of the commons, and what is the history of ideas that have helped people understand the importance of the commons? (7) How does the language of modernization and progress reproduce the patterns of thinking that furthers the expansion of industrial culture that is undermining the commons. Giving these questions a more central place in the discussions of educational reform would lead to major changes in the readings, class discussions, and ethnographic fieldwork in disciplines ranging from cultural linguistics, economics, history, political science, sociology, anthropology, philosophy, and educational studies.

If these questions are to be taken seriously within the context of these different disciplines, other aspects of the double bind would need to be addressed. These include aspects of culture that now are either misrepresented or relegated to the realm of silence. Until students are introduced to a more complex and accurate account of these aspects of culture the assumptions that underlie the thinking of most university professors, as well as the current phase of development of industrial culture, will continue to shape the expectations of most university graduates. These misrepresentations and silences include the current use of the political categories of liberalism and conservatism, the

misrepresentation of language as a conduit in a sender/receiver process of communication, the failure to clarify the limits of scientific inquiry and when science becomes scientism, and the widely held assumption that technology is both culturally neutral and at the same time the expression of progress.

Each of these misrepresentations and areas of silence contributes to the students' inability to recognize how they are dependent upon what remains of the commons. And in not being able to recognize the networks of interdependence with the natural and symbolic commons they are part of, they will less able or inclined to participate in the political discourse that defends the commons from the economic and political forces that have as their goal the transformation of the commons into new market opportunities. Overcoming the conceptual barriers to introducing students to the nature and importance of the world's diverse commons, including the students' own taken-for-granted network of embeddedness, will be a daunting challenge. However, it is a challenge that is being made all the more urgent by the environmentally and culturally destructive nature of economic and technological globalization. The following is brief overview of the nature of the misrepresentations and silences, as well as how they need to be rectified. Misuse of Liberalism and Conservatism in Today' Political Discourse.

In spite of the tradition of philosophic conservatism that extends from Edmund Burke, James Madison, to Robert Bellah-- including environmental writers extending from John Muir , Aldo Leopold, Wendell Berry, Vandana Shiva, to Gregory Bateson-most professors continue to associate conservatism with such prominent individuals as William Buckley, Jr., Rush Limbaugh, and President George W. Bush—and their many followers. University professors, and even environmentally activist public school teachers, reproduce a similar set of conceptual errors when they label themselves as liberals. The result of this intellectual confusion and laziness is that the word conservative is now used to refer to the promoters of capitalism, a survival of the fittest form of individualism, overturning key provisions of the Constitution and Bill of Rights, and economic policies that further degrade the environment. The irony is that this misuse of political labels prevents university professors who address social justice and environmental issues from recognizing that they are contributing to sustaining the commons. By identifying themselves as liberals they align themselves conceptually with the liberalism that has its roots in the thinking of John Locke, Adam Smith, John Stuart Mill, and Herbert Spencer—which addressed the constraints and injustices of their times but contained a number of assumptions that are deeply problematic in today's world. A shared characteristic of these founders of modern liberalism is that they all assumed that their ideas were universal truths that should be imposed on the backward cultures of the world, that the environment should be viewed in economic terms and privately own, and that all traditions should yield to the subjectively determined needs of the self-made individual. What is being overlooked is that their ethnocentrism, which is now being repeated in the globalization policies of the market liberals and the faux neoconservatives, totally marginalizes the question that should be central to sustaining the commons: which is "What do we want to conserve in this era of ecological uncertainty, and that contributes to more ecologically and socially just communities?

If this question were raised in university classrooms today, given the policies of the current Bush administration, students and faculty might identify the need to conserve and even to recover the full range of civil liberties, the gains of the labor movement, the separation of church and state, the need for an independent judiciary, programs that benefit the economically marginalized, and so forth. An equally conservative agenda would be expressed by the environmentally oriented faculty: preservation and renewal of habitats, conserving the diversity of species, conserving the non-renewable sources of energy, conserving topsoil and old growth forests, and so forth. Because the market liberals, neo-conservatives, and extremist talk-show hosts have succeeded in representing their classical liberal agenda as conservative, the professors who are concerned with environmental and community renewal issues continue to misrepresent themselves—and thus help to ensure that future generations of students will not expect accountability in the use of our most basic political vocabulary.

The key point here is that if students are going to be introduced to the diverse history of the commons, as well as understand how the commons reduces dependence on the environmentally destructive consumer culture, they will need to use a political vocabulary that more accurately represents what needs to be conserved and what needs to be changed that contributes to the well-being of the commons. This will require expanding the political vocabulary so that what people stand for is clearly represented—such as being an extremist, a reactionary, a fascist, a traditionalist, a religious conservative, an environmental conservative, a market liberal, an ethnocentric and messianic liberal, and so forth.

#### Misrepresenting Language as a Conduit in a Sender/Receiver Model of Communication.

The above discussion of how words carry forward the misunderstandings and silences of earlier generations is just part of the evidence that challenges the widespread misrepresentation in university and public school classrooms that language is a conduit for transmitting ideas, objective data and information between autonomous individuals. If we consider the interpretative frameworks that are encoded in the language used in our educational systems, churches, and in business (such as patriarchy, anthropocentism, mechanism, change as progress, individualism, evolution, and so forth) we can easily see how they have influenced the modern approach to such diverse areas as agriculture, medicine, industrial production, genetic research, education, architecture, and so forth. The myth that language is a conduit is essential to maintaining several other myths that are reinforced within the educational establishment: the myth of autonomous and rational individuals who are uninfluenced by their culture's deep assumptions, and the myth of objective information and data. These two myths help to marginalize an awareness of the students' ethnocentric pattern of thinking—which will likely lead in later years to their support of colonizing foreign policies. But the myth of being an autonomous individual, which the conduit view of language helps to support, has other consequences that relate directly to undermining the viability of the local commons as well as that of the other cultural commons.

The lack of awareness that the students' own language encodes the deepest and most taken-for-granted assumptions of their culture further marginalizes the awareness that other cultures are based on different assumptions—and that some of these cultural ways of understanding human and nature relationships account for their smaller ecological footprint. Unfortunately, the language reinforced in public schools and universities carries forward past ways of thinking of cultures as evolving from primitive (and thus backward) to the advanced stage of culture development as represented by Western universities. This has the effect of making it appear irrelevant or as the expression of romantic thinking to learn about how other cultures renew their commons—as well as how they resist the Western model of enclosing the commons. If we consider the dominant root metaphors or interpretative frameworks (individualism, progress, a human –centered world, mechanism, evolution,, markets, and so forth) we find a lack of words that are needed to name and to make explicit both the natural and cultural commons that are part of the students' taken-for-granted world. And in being taken-for-granted their dependence on what remains of the commons is not recognized . As mentioned earlier, the language of the commons will not be part of their industrially oriented vocabulary, nor will the word "tradition" will have any standing other than as a word that designates what is irrelevant and in need of being overturned.

For the classical liberal thinkers, tradition was understood as the source of oppression and backwardness. Today, as I have learned from colleagues and graduate students, that the word is still associated with whatever stands in the way of progress and greater freedom of individual expression and self-discovery. Within the context of corporate culture, traditions represent what has to be replaced with expert systems and new consumer products. As the viability of the commons is dependent upon intergenerational knowledge (traditions) that represent alternatives to being dependent upon consumerism and expert systems, it is important that students be able to discriminate between traditions that are essential to personal and community empowerment and social justice, and traditions that undermine the sustainable characteristics of the commons. This ability is undermined when both intergenerational knowledge and traditions are reduced to abstract phrases and words that have only a negative meaning.

The influence of taken-for-granted patterns of thinking can be seen in how past achievements in establishing the separation of church and state, in labor legislation, in civil liberties, and in achieving greater equity in gender and race relations are understood as expressions of progress, rather than traditions that need to be conserved and built further upon. The point here is that hard-won gains in social justice that have become part of the legacy of past generations are still not viewed by most university professors and their students as examples of traditions. The way of thinking that identifies social justice gains as expressions of progress, which is associated with liberalism, still dominates the pattern of thinking that contributes to the silence about asking what needs to be conserved. The effect is that social justice advocates continue to identify themselves with the political label that more accurately encodes the deep cultural assumptions that promotes, in messianic fashion, the enclosure of the world's diverse commons. The two metaphors, "progress" and "tradition", should not be understood as categorical opposites. Rather, they need to be evaluated in terms of different cultural contexts and in terms of specific examples. And there is a need to adjust our language in a way that takes account of how any cultural pattern that is reenacted over four generations or cohorts is more accurately understood as a tradition. How Science and Scientism Influence the Commons.

Few students graduating from today's universities understand the difference between science and scientism, and how in their different ways they both contribute to the enclosure of the world's commons. Scientific knowledge has benefited humankind in many ways, and it is especially useful now in adding to our understanding of the changes occurring in natural systems. But science, as a mode of knowing and thus a source of new knowledge, has a Janus face in that it has also been a major contributor to the process of enclosure by bringing more life forming processes under the control of private ownership and corporate control. Scientific knowledge created the possibility of patenting gene lines and genetically engineering seeds. These are just two of the recent examples of how the commons is being further incorporated into the industrial systems of production and consumption.

The scientism of E. O. Wilson, Richard Dawkins, and others who are attempting to explain how cultural beliefs and practices (what they call "memes") are subject to the same laws of natural selection as the biological world are making predictions and providing explanations that cannot be justified in terms of scientific evidence. But their supposedly scientifically grounded explanations and futuristic predictions provide what can easily be interpreted by the uninformed university graduate, as well as the general public, as supporting the survival of the fittest economic principles of the market liberalism that is now the centerpiece of American foreign policy. This example of scientism greats the illusion of a science-based ideology that justifies the enclosure resulting from economic and technological colonization as the better adapted cultural memes prevailing over the less well adapted.

Students need to be able to recognize when science is being used to strengthen the commons, when is being used by corporations to transform more of the commons into

market opportunities, and when scientists are using their achievements as scientists to make predications and value judgments that have no basis in terms of scientific evidence. In this era of globalization, it is essential that students acquire a more complex understanding of the limits and possibilities of science, and when it is being used to further enclose the commons. Without these understanding, they will be unable to participate in the democratic decision making about the appropriate uses of science that should be part of being a citizen of the commons.

## The Myth of Technology as a Tool and as Culturally Neutral.

The difference between cultures that develop and use technologies that help to sustain their commons, as well as cultural approaches to technologies that undermine both the cultural and natural commons, should also be part of the focus of university reform. Currently, most university graduates are being reinforced in thinking that technologies are culturally neutral while at the same time the manifestation of progress. How different technologies undermine the intergenerational knowledge that reduces dependence upon consumerism currently is not understood. And in not being understood, there is a lack of awareness of the need to democratize decisions about the introduction of new technologies. As in the case of introducing computers into classrooms, it was the experts who represented the interests of the computer industry that explained what the educational gains would be—which recent studies have found to be grossly over-stated.

There are a number of issues that should be central to any in-depth study of technology, and its impact on what remains of the commons. These include how different technologies either marginalize or facilitate the traditions of craft knowledge; how they contribute on a global scale to new forms of dependencies on a money economy; how they progressively reduce the need for workers and deskill those that can still find work; how they influence social relationships and ways of thinking; and how they alter the values, language and thus ways of thinking within different cultures. Learning about the influence of different technologies on the students' commons, as well as the commons of other cultures, would help to overcome one of the major silences that now characterize what is learned in most Western universities. That is, while both social and mechanical technologies are one of the dominant characteristics of Western cultures, and are being promoted on a world-wide basis without any assurances other than what is promised by the myth of progress, there are few universities that promote the study of technology. The myth that technology is simply a tool, and that the major educational challenge is to create more efficient technologies, continues to go unchallenged in most university courses—and in nearly all public school classrooms.

# Broader Implications.

As these sub-topics of ideologies, language, scientism, technology, and so forth that have a direct impact on how the world's diverse commons, and cut across many academic areas of study, it should be evident that a single course would provide only a superficial overview-and thus would not be effective. What is needed is to make the study of the cultural practices that contribute to sustaining the commons, as well as those that are undermining it, should be the focus of a four year program of study. Students who took the course on "Environmental Ethics in Cultural Perspective" that I taught at the University of Oregon also took courses in philosophy that represent the rational process as free of cultural influences, in psychology that represents the brain as influenced by genes and electro-chemical processes, in political science that reinforces the same liberal assumptions that underlie the process of globalizing the West's industrial consumer-dependent culture, and history courses that reinforce the basic conceptual interpretation that represents the West as the most advanced form of culture. Given the diversity and introductory nature of most of the courses the students take, my course on the connections between environmental ethics, the different cultural approaches to sustaining the commons, and the eco-justice issues raised by globalization, will have little more than passing interest for students. Courses based on different assumptions and interpretative frameworks, especially if they reinforce the ethnocentric thinking learned in the larger society, will have the effect of marginalizing what they learn in my course. What I have described here is a characteristic of most universities where the course requirements for graduation are heavily influenced by the efforts of individual faculty and departments to get their courses included as part of the core requirements—or as an elective. The past willingness among faculty to agree upon a program of study that lacks conceptual and moral coherence, and that fails to address the most critical issues we face today, is no longer an acceptable strategy.

The politics of establishing what students need to learn as part of a university education has not, in the past, been influenced by an awareness of how rapidly natural systems are now being degraded, and how the cultural alternatives to the industrial culture that needs fewer workers and more consumers are now disappearing. In short, the current requirements for a university degree, regardless of how they vary from university to university, do not provide the basic understanding of how cultural beliefs and practices are contributing to the rapid changes now occurring in the natural systems we all depend upon. This now needs to be made the basic priority—and in doing so, it will require an entire degree program that has as its central focus the challenges we face in revitalizing our commons and in avoiding the destruction of the commons of other cultures.

#### **Chapter 6** The Environmental Ethic Implicit in Three Theories of Evolution

A comparative cultural and an historical perspective supports the claim that the environmental ethic of a culture is derived from its mythopoetic narratives. The environmental ethic that has guided the cultural practices of Christians over the last two centuries was spelled out in the Book of Genesis. According to this narrative, as the first human, Adam was given responsibility for naming the natural world created by God. This hierarchical relationship, which set "man" over nature, became the basis of an environmental ethic that sanctioned treating the environment as a resource-and, in the best sense, as involving a custodial relationship. In various versions of the Hindu mythopoetic narratives of creation Nature (sometimes translated as "cosmic matter") is sacred, and thus not reducible to an economic resource. To cite another example, the mythopoetic narrative of the Quechua of the Andes represents human/Nature relationships as nurturing through a continual dialogue. The environmental ethic of the Quechua thus requires listening and responding to what Nature communicates. Thus, as the many dimensions of nature—plants, soils, rivers, weather, etc.—nurtures humans, humans must reciprocate with nurturing behaviors and thoughts toward the environment. The environmental ethic implicit in other mythopoetic narratives, ranging from major religions such as Islam and the various traditions of Buddhism to the mythopoetic narratives of indigenous cultures such as the Hopi and Inuit, point to the fact that environmental ethics are as varied as the knowledge systems of the world's cultures.

Today, the globalization of the western system of a consumer/technology dependent form of individualism is undermining the mythopoetic narratives of many of these cultures. This process can be seen in how the spread of computers, and increasing adoption of other western technologies and science are undermining linguistic diversity, which is essential to maintaining biodiversity. The role of western science in this process of globalization is complex and contradictory. Scientists are working to increase the world's food supply and to reverse environmental degradation. Their research is also leading to the development of new technologies such as genetically altered seeds and computers that undermine the intergenerational knowledge essential to traditions of self-sufficiency. And with the loss of cultural traditions of self-sufficiency comes increasing integration into the western economic system—and its accompanying technological dependency. But these aspects of globalization are not the main concern here. Rather, what needs to be considered here is the way in which the western account of evolution is being extended as the explanatory framework of everything from biological systems to cultural beliefs, values, and practices. And, as its explanatory power is being represented as presenting a scientific basis for understanding a whole range of cultural phenomena, it (1998a, p. 265).

Thus, the question that needs to be asked of this "true evolutionary epic" or narrative is: What is the nature of the environmental ethic that is consistent with its account of natural selection? A second question also needs to be asked: namely, At what point does evolution as an explanatory model become an ideology that undermines cultural divesity? The growing body of knowledge of how genes work has emboldened leading scientists to make predictions about areas of culture that previously were considered beyond the boundaries of empirical investigation. For example, scientists such as Francis Crick now claim that the "aim of science is to explain all aspects of the behavior of our brains, including those of musicians, mystics, and mathematicians" (1994, p. 259). Other scientists have taken on the Promethean task of explaining how values are the outcome of natural selection. Richard D. Alexander, for example, writes in The Biology of Moral Systems (1987) that "each person is programmed by the history of natural selection to maximize the likelihood of survival of his/her genetic material through reproduction and nepotism..." (p. 108). There are, in fact, dozens of books that now attempt to explain the genetic and thus evolutionary basis of values and religious systems.

Perhaps the most widely known among these scientists is E.O. Wilson. As the founder of sociobiology and as a prolific author who is able to write with such clarity that he now has a wide following among the general public, Wilson has become one of the most visible spokespersons for the argument that, as he puts it, "the development of moral sentiments are products of the interaction between genes and the environment" (1998a. p. 64). Wilson attempts to avoid the criticism that he is a genetic determinist by suggesting that moral conventions are the outcome of "gene-culture coevolution." But even this attempt to bring culture into the picture is negated by his continual reference to how Darwinian fitness is the ultimate test of what will survive. And as surviving longer and leaving more offspring is interpreted as the measure of evolutionary success, Wilson concludes that "all mammals, including humans, form societies based on a conjunction of selfish interests" (1998a, p. 171).

Before taking on the task of clarifying the environmental ethic that is consistent with the three different interpretations of evolution now being encountered by the general public, it would be useful to quote Richard Dawkins' conclusion about the nature of a Darwinian universe—a conclusion shared by scientists who represent the western scientific paradigm as the only valid approach to knowledge. As Dawkins put it, "The universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind, pitiless indifference....DNA neither knows nor cares. DNA just is. And we dance to its music" (1995, p. 133). As I will show in the following analysis, while many interpreters of evolution embrace Dawkins' radical reductionism, which Wilson repeats when he writes that "the genes...feel nothing, care for nothing, intend nothing....Their writ extends to the level of molecule, cell, and organs" (1998a, p. 165), they also impose on the idea of natural selection the western cultural view of linear progress. In addition, they interpret evolution as leading to a world monoculture—which contradicts the understanding that the interplay between mutations within organisms and natural selection accounts for the Earth's diversity of species.

An example of how evolution is being interpreted as a linear form of progress can be seen in Aldo Leopold's classic effort to articulate a land ethic. The most arguably important and famous essay in <u>A Sand County Almanac</u> begins with an account of how Odysseus treated his slaves as property, and how over a thousand years the moral norms guiding moral behavior evolved from the Mosaic Decalogue to relations between in individuals and society. "This extension of ethics," Leopold wrote, "so far studied only by philosophers, is actually a <u>process of ecological evolution</u>" (1996 edition, p. 238, italics added). Leopold goes on to claim that "all ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts" (p. 239). Leopold relies upon the idea of instincts, a metaphor that contemporary biologists have abandoned in favor of explaining the genetic basis of survival, to explain the individual's relationship to the larger community. As Leopold put it, "his (the individual's) instinct prompts him to compete for his place in the community, but his ethic prompts him to also co-operate (perhaps in order that there may be a place to compete for)" (p. 239). The evolution of ethical norms, as Leopold understood it, has led to enlarging the unit of survival from that a community of individuals to a community which includes "soils, waters, plants, and animals, or collectively: the land" (p. 239).

Leopold was not the first to interpret evolution as the basis of a linear form of progress where the process of natural selection sorted out the fit from the unfit cultural practices. Herbert Spencer, for example, turned Darwinism into an ideology that was used to justify business practices and governmental policies during the latter part of the nineteenth and early part of the twentieth century. But it was Leopold's genius that led to shifting the focus from individual organisms and species as the unit of survival to understanding that ecological systems are the unit of survival . Indeed, his famous formulation of a land ethic anticipated one of the more central ideas of Gregory Bateson. The moral imperative of Leopold is that " a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (p. 262). Bateson put it this way" "in no system which shows mental characteristics of the system are immanent, not in some part, but in the system as <u>a whole</u>" (1972, p. 316).

While Leopold's environmental ethic is clearer than his historical account is accurate, the environmental ethic implicit in other interpretations of evolution is deeply problematic. And as the theory of evolution is again being extended to explain cultural developments, and thus is again taking on the role of an ideology, there is the danger that it will contribute to undermining the environmental ethics of cultures whose development was guided by ancient mythopoetic narratives that represented humans and the nonhuman forms of life as participants in the same spiritual, interdependent universe.

The three interpretations of evolution now being given the greatest exposure in the public realm include: (1) the computer-futurist argument that natural selection will shortly lead to computers replacing humans; (2) the genocentric argument promoted by Richard Dawkins and E. O. Wilson; and (3) the universe story of Brian Swimme and Thomas Berry that represents humans as confronted with a choice about the future course of evolution. [**Is**] needs to be emphasized here that debates within the scientific community, such as the issues raised by Stephen Jay Gould, R. C. Lewontin, and Brian Goodwin, will not be the focus here. Nor will the arguments about "intelligent design" be given attention. Rather, the three ways in which evolution is being explained to the public, as well as how the explanations support public policies relating to environmental issues, will be the main focus. In effect, the focus here will be on the <u>non-scientifically</u> based extrapolations of scientists and self-proclaimed experts who are transforming the theory of natural selection into an ideology. The extrapolations will be examined in terms of the form of environmental ethic they support.

Before examining these three interpretations it is first necessary to clarify how I am using the phrase "environmental ethics," and, more importantly, how language reproduces the moral templates of a cultural group. Language, as linguists tell us, is used to communicate the culture's way of understanding relationships, the attributes of the participants in the relationships, and thus the taken-for-granted moral codes that govern relationships. For example, the moral codes that governed for centuries the relationships between men and women in our culture were dictated largely by the way the attributes of each was understood and encoded in the language. Thus, as individuals learn the language of their culture they are also learning the taken-for-granted moral patterns that treated women as inferior. Similarly, in western cultures based on mythopoetic narratives that represent humans as rational agents surrounded by a wilderness that is both hostile and an exploitable resource, the languaging processes reproduced the culture's way of understanding what constitutes the normal and thus moral relationships with the
environment. Using rivers to carry off toxic wastes, clear-cutting of old growth forests, and exploiting fisheries through the use of more efficient technologies represented the environmental ethic of these cultures. It's a destructive environmental ethic, but is nevertheless a set of moral norms encoded in the language of the culture — and given legitimacy by the mythopoetic narratives that are the basis of the culture's world view. An environmental ethic may be destructive of the life-sustaining characteristics of local ecosystems, or it may be based on minimizing the human impact on natural systems. Ultimately, a culture's environmental ethic, including the mythopoetic narratives it is based upon, must meet the long-term test of Darwinian fitness. That is, an environmental ethic will not ensure the survival of a culture if the practices of the culture destroy the life-sustaining capacity of the environment. But what is important to note here is that the development of an environmental ethic can be traced back to the mythopoetic narratives of a culture, or to powerful evocative experiences that have shaped the culture's deepest ways of understanding. The three interpretations of evolution to be examined here start with a different assumption: namely, that the process of natural selection dictates the culture's environmental ethic, and that mythopoetic narratives play no part in the process.

### The Cultural Extrapolations of Three Interpretations of Evolution

The three books that have received the widest public exposure are Ray Kurzweil's <u>The Age of Spiritual Machines: When Computers Exceed Human Intelligence</u> (1999), E. O. Wilson's <u>Consilience: The Unity of Knowledge</u>, and Brian Swimme and Thomas Berry's <u>The Universe Story</u> (1992). Each book represents a distinct set of cultural extrapolations and an equally distinct interpretation of the competitive interactions that govern natural selection. They also share a number of Darwin's basic insights about the survival of the better adapted species—including the idea that life is an ongoing competition and that it is the environment that determines what constitutes the fittest.

Kurzweil's arguments represent one of the more extreme extrapolations that now characterize a growing body of literature purporting to explain how computers are on the verge of displacing humans in the evolutionary process. Using metaphors derived from the field of computing, Kurzweil claims that "evolution is the master programmer." He goes on to explain that "the software programs have been written down, recorded as digital data in the chemical structure" of the DNA molecule—which "controls the vast machinery of life" (1999, p. 40). Having established that the human genetic code is similar to the software that is the basis of computer intelligence, Kurzweil goes on to explain the many ways in which computers will surpass humans, and thus lead to their extinction. Powerful computers, he claims, will be trillions of times more capable than human intelligence. And this increased data processing capacity will enable them to program themselves to have human personalities, religious experiences, create music, and perform physical tasks. The further evolutionary advantage of computers is that they will not be subject to irreversible illnesses that lead to death. Kurzweil's certainty leads him to predict that by the year 2029 the conscious nature of computers will be widely recognized—which will lead to the acceptance that computers have legal rights. He further predicts that by 2099, "most conscious entities (will) not have a physical presence" (p.280).

Kurzweil is not a lone voice with the community of computer-futurist thinkers. Others such as Hans Moravec, Gregory Stock, and George Dyson also agree that the emergence of computers is being dictated by natural selection—and not by human choice. In <u>Mind Children: The Future of Robot and Human Intelligence</u> (1988), Moravec announced that we are "entering a postbiological world dominated by self-improving machines" (p. 5). And in the End-of-the-Millennium Special Issue of <u>Scientific</u> <u>American</u>, he explains how the brain "evolved into a universal machine of sorts." As he put it, "honed by hundreds of years of millions of years of evolution, the brain became a kind of ultrasophisticated—but special purpose—computer" (1999, p. 126).

Gregory Stock's book, <u>Metaman: The Merging of Humans and Machines into a</u> <u>Global Superorganism</u> (1993), explains how the extinction of the world's languages and knowledge systems is the result of natural selection. Stocks' arguments that politics have nothing to do with which cultures survive, and which go extinct, is echoed in Keven Kelly's concluding observation that "we should not be surprised that life, having subjugated the bulk of inert matter on Earth, would go on to subjugate technology, and bring it also under its reign of constant evolution, perpetual novelty, and <u>an agenda out of</u> <u>our control</u>" (1994, p. 472, italics added). The mainstream genocentric interpretation of how cultural developments are under the control of the evolutionary process is best articulated in the writings of E. O. Wilson—especially in <u>Consilience: The Unity of Knowledge</u>. For Wilson, the evolution of cultures is not leading to the ascendancy of computers over the human brain; rather, it is leading to the ascendancy of the scientific over the pre-scientific ways of knowing. Religious experiences, including the mythopoetic narratives that are the basis of a culture's belief and moral system are, according to Wilson, expressions of the neurobiological activity of that brain that has evolved as a survival mechanism. The future survival of humans, he argues, requires that the basis of this adaptive behavior undergo a radical change. This change will require that what Wilson calls the "true evolutionary epic" replace the religious cosmologies of Christianity, Islam, Hibduism, and so forth (1998a, p. 265). Even this new "sacred narrative" will require continual revision as new scientific discoveries are made. As Wilson put it, "science for its part will test every assumption about the human condition and in time uncover the bedrock of moral and religious sentiments" (p. 265).

Wilson wants to avoid the criticism that his interpretation of cultural evolution is based on a genetic determinist argument that exceeds what can actually be scientifically verified. He also wants to maintain that humans are faced with fundamental questions about the environmental ethic they should live by. Yet if we read carefully Wilson's explanation of the role that genes play in the formation of the epigenetic rules that supposedly guide the evolution of cultural beliefs and behaviors (what he calls "genecultural coevolution) we find that he continually identifies genes as the critical components in the process of natural selection. The primacy of genes in determining which cultural patterns of thinking and values (cultural "memes") survive and which do not is summarized in the following way:

Genes that confer higher survival and reproductive success on the organisms bearing them, through the prescribed traits of anatomy, physiology, and behavior, increase in the population from one generation to the next. Those that do not, decrease. Similarly, populations or even entire species with higher survival and reproductive success prevail over competing populations or species, to the same general end in evolution (1998a, p. 129 The important question now becomes: How does Wilson explain the nature of the genes that supposedly share in the evolutionary fate that is partly determined by the collective mental decisions we call culture? In perhaps the most important passage in <u>Consilience</u>, he undermines his own attempt to establish that genes and culture co-evolve with the following explanation:

The genes <u>prescribing</u> the epigenetic rules of brains and behavior (culture) 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 physiochemical reactions, culminates in the self-assembly of the sensory system and 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 and physiology 1998a, p. 165, italics added

As I read this summary of the primacy of genes in the formation of cultural behaviors, the activities of the brain—metaphorical thinking, memory, conscious awareness, experience of meaning, value judgments, intentionality, sense of personal identity—are the outcome of sequential physiochemical reactions. Genes, according to Wilson's own explanation, create brains and brains (by extension, cultures) must meet the test of Darwinian fitness. This means, " that statistically they survive longer and have more offspring than brains (cultures) that choose badly" (p. 165).

The third interpretation of evolution that is gaining popularity within the more religiously oriented segment of society is also based on the argument that what survives is the outcome of natural selection. Evolution, which Brain Swimme and Thomas Berry explain as the story of the universe, is represented as possessing characteristics ignored in the two other accounts presented here. Swimme and Berry frame the story of the universe's 15 billion year history as reaching a critical juncture for the Earth's human inhabitants. The juncture, as they explain it, is whether the human choice will result in the evolutionary process moving into what they call the Technozoic Era (which they envision as destroying the life-sustaining ecosystems) or into the Ecozoic Era. Avoiding ecological collapse, they warn, will require a fundamental changes in consciousness—changes based on an awareness that the entire planet is interdependent and governed by the same life forming processes.

Swimme and Berry face the same problem that Wilson failed to address adequately because of his genocentric arguments that extend well beyond what scientific evidence supports: namely, how to reconcile human choice with the unrelenting force of natural selection. Swimme and Berry accept Darwin's basic insight, and write in <u>The Universe Story</u> that natural selection is "life's power to sculpt diversity in a creative fashion" (1992, 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 same sense that the genes enabling a particular phenotype to succeed relative to all others are selected and passed on" (p. 128).

Having accepted the basic tenets of Darwin's theory of evolution, they are faced with the problem of explaining how human choice can supercede the inexorable and humanly unpredictable dynamics of natural selection. As neither Swimme nor Berry are scientists, they introduce a different vocabulary and thus a radically different way of understanding evolution. Evolution, they claim, is based on what they term the "Cosmological Principle," which accounts for the processes of "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 Dawkins (1976). Autopoiesis, which refers to the self-organizing characteristics of all organisms, is also essential to mainstream interpretations of evolution. But communion is not! Swimme and Berry summarize the nature of communion as the state of being related to everything else, for "relationship is the essence of existence" (p. 77).

The communion that exists even as natural selection sorts out the better from the less well adapted, according to Swimme and Berry, needs to be both understood and experienced if humans are to ensure that evolution enters the Ecozoic Era. The experience of communion-- the experience of being connected and interdependent in the multi-layered ecosystems that sustain life--becomes essential to another theme not found in the more orthodox interpretations of natural selection. That is, Swimme and Berry see communion as basic to citizenship in the Ecozoic Era, and as a way of re-integrating a traditional religious distinction into the life-shaping process of evolution. As they put it:

The loss of relationship, with its consequent alienation, is a kind of supreme evil in the universe. In the religious wold this loss was traditionally understood as an ultimate mystery. To be locked up in a private world, to be cut off from the 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 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 conscious choice on the part of the horse to evolve in a way that made survival dependent upon speed of movement. The bison, according to their theory of choice, evolved its more massive physical features by consciously choosing to stand and confront its enemies. Unlike the computer-futurist and genocentric interpretations of evolution, Swimme and Berry need to introduce conscious 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.

As they are not scientists, Swimme and Berry do not face the problem of accountability in the way a scientist does. Their audience is largely uninformed about the science of evolution; it is also an audience the is accustomed to merging religious and politically liberal themes and values. What Swimme and Berry give them is a way of understanding that their ecologically oriented theology is compatible with the theory of evolution. Swimme futher blurs the line separating science from eco-spirituality when he writes in <u>The Hidden Heart of the Cosmos</u> (1996) that "<u>the center of the Cosmos is each event in the cosmos</u>. Each person lives in the center of the cosmos" (p. 112, italics in original). To be consistent with his earlier argument that natural selection determines what will become extinct and what will survive, his new doctrine can only be interpreted as saying that all forms of behavior are expressions of what the cosmos is doing—and that the individual does not need to take responsibility. In effect, Swimme has restated Kelly's reductionist statement that nature is in control.

Back to the Question: What is the Environmental Ethic Implicit in the Three Interpretations of Evolution?

This brief overview of three interpretations of evolution highlight the fundamental differences in how the cultural implications of natural selection are understood by leading scientists and eco-spirituality writers. It also clarifies the differences in how the process of natural selection is being used to explain the problem of degrading the natural systems that humans and other species

depend upon. The hubris of the computer-futurist thinkers leads them to ignore entirely the ecological crisis, and to be equally indifferent to the culturally destructive side of their vision of a post-biological world. Wilson's representation of the genocentric interpretation of natural selection gives an account of how a belief in God (1998b), the formation of values (1998a, pp. 53-70), and a caring attitude toward nature (the biophilia hypothesis, 1984), are "hardwired" in our genes—which makes them the outcome of natural selection. His concern about whether humans will change their cultural practices and thus their ecological impact is genuine. But his "genes create brains that create culture" argument undermines his appeal for a transformation in human agency. As he repeatedly states, "through natural selection the environment ultimately selects which genes will do the prescribing" (1998, 137).

The Swimme/Berry interpretation of evolution as having reached a juncture where human choice will affect the future direction of life on this planet also suggests that an environmental ethic is their central concern. Their appeal for a change in human consciousness, one that makes communion and moral reciprocity central to all human behavior, appears on the surface to be essential elements of an environmental ethic. However, by embedding their environmental ethic in the story of the universe (that is, the evolution of life's diversity through natural selection), they also undercut their argument for human agency. To reiterate their most important statement about Nature's process of design: "natural selection is a survival of the 'fittest" in the sense that the genes enabling one particular phenotype to succeed relation to all others are selected and passed on (1992, p. 128).

In all three interpretations of evolution, the ultimate source of agency is the environment where natural selection determines which genes will survive the test of Darwinian fitness—and which will go extinct. If the basic premise of these three interpretations of natural selection is correct, then the suggestion by Wilson, as will as those of Swimme and Berry, that humans need to take responsibility by changing their environmentally destructive behavior is merely wishful thinking. All three interpretations, in effect, echo Kevin Kelly's observation that Nature's process of design is "out of our control."

At the beginning of this paper it was suggested that the historical evidence indicates that the environmental ethic of different cultures is derived from their mythopoetic narratives, and that while natural selection explains much about the development of biological processes it does not explain the origin of the mythopoetic narratives of different cultures. A further point that needs to

be emphasized is that the environmental ethic derived from many of the mythopoetic narratives of different cultures, while often making universal claims about the sacredness of nature as well as positing principles of moral reciprocity, have lead to complex bodies of knowledge about local ecological systems—and how to sustain the needs of the community without degrading them. In effect, while the mythopoetic narratives, like other aspects of a culture's symbolic world, cannot be explained as being genetically hardwired, they can become extinct if they do not lead to understanding the characteristics of the bioregion as well as the difference between sustainable and unsustainable practices. A culture's environmental ethic, and its underlying mythopoetic narrative, are not unaffected by the Darwinian test of fitness that operates in the biological realm.

Since none of the three interpretations of evolution take seriously which aspects of culture can be scientifically explained, and what is beyond scientific verification, it is necessary to return to the original question: What is the environmental ethic that is consistent with the process of natural selection? Another question also needs to be asked, namely: Do the attempts to explain cultural developments in terms of the theory of evolution transform it into an ideology that undermines the diversity of the world's cultures and the environmental ethics they are based upon? When we recognize that all three interpretations are based on a number culturally specific assumptions that contradict the characteristics of natural selection the answer to the above questions becomes clear. It is the cultural assumptions taken-for-granted by the computer-futurist thinkers, Wilson, Swimme and Berry that turn their explanations of the evolution of cultural development into an ideology that justifies the current process of economic and technological globalization as being dictated by Nature. In effect, the environmental ethic implicit in their theories of evolution turns out to be the same set of moral norms used to give legitimacy to the earlier industrial phase of western colonization. The cultural assumptions include the following:

1. <u>That Change is a Linear Form of Progress</u>. The argument that evolution is replacing humans with computers that can process information at a higher rate is an example of the western way of equating change with linear progress, Wilson's claim that pre-scientific cultures were "trapped in a cognitive prison" and the scientists should now take responsibility for passing final judgment on what people should believe and value (1998a,p. 265) is also an example of thinking of change as a linear form of progress—where cultures evolve from primitive to a scientifically based civilization. Likewise, the universe story is an epic account of linear progress, including progress in the evolution of moral insight—a way of thinking that Leopold shares with Swimme and Berry. The

major problem with interpreting evolution as consistent with the western assumption that equates change with linear progress is that the constant interplay between mutations and the selective work of the environment can more accurately be understood as leading to greater complexity and increasing diversity. Increased diversity, which should not be interpreted as an example of linear progress, is the hallmark of natural selection. One consequence of equating evolution with progress is that it gives the appearance that various expressions of western colonization (technological, economic, and epistemological) are dictated by natural selection—and not by greed and a messianic form of ethnocentrism. In effect, the argument that natural selection determines which are the most progressive cultures and thus best adapted to the changing contingencies of the environment, is simply a restatement of the nineteenth century slogan of "survival of the fittest." This way of thinking, in turn, supports the idea that the corporations that are able to out-compete their rivals in adapting to niche markets, and in driving their competitors completely from the field, are simply following Nature's logic.

2. Evolution is Leading to a World Monoculture. All three interpretations of evolution are based on the same western assumption that motivated Christian missionaries, industrialists, and the leaders of western universities to view their task as that of remaking all the world's cultures in the image of the West. Indeed, the ideal of a world monoculture is deeply entrenched in western consciousness. And the three interpretations of the evolution of cultures revitalizes this vision by giving it the appearance of a scientific fact. To reiterate the basic arguments: the computer-futurists argue that the developments in computer-based technologies are leading, as Stock put it, to a "global superorganism"—which Dyson calls a "global intelligence." The predictions of Moravec, Dyson, and Kurzweil ignore cultural differences entirely, and are based on the assumption that computers will displace <u>all</u> humans—regardless of culture. In Moravec's latest predication, humans will not disappear entirely, but instead will be relegated to a life "not unlike today's comfortable retirees or wealthy leisure classes" living in Sun City style environments (1999, p. 135).

Wilson's interpretation of evolution, as Wendell Berry notes in <u>Life is a Miracle</u>: <u>An Essay</u> <u>on a Modern Superstition</u> (2000), is also imperialistic in that he only recognizes the legitimacy of scientific knowledge and the new technologies it spawns (p. 30). In effect, Wilson is repeating the late nineteenth century Social Darwinist argument that cultures are at different stages of evolutionary development, and the West, with its more evolved scientific way of knowing, has a mission to accelerate the evolution of other cultures in achieving the same advanced way of knowing. The Swimme/Berry interpretation acknowledges the importance of cultural diversity, but they undermine this insight by claiming that there is only one story of creation—which is the scientifically based account of evolution. Their argument that humans stand at the threshold of a momentous decision of whether to turn toward an ecologically-centered form of culture ignores the many indigenous cultures had made that turn centuries ago. The Quechua, for example, have lived somewhere between eight and ten thousand years by a mythopoetic narrative that represents all forms of life in the Andes as mutually nurturing and interconnected—a fact that cannot be reconciled with the linear, teleological interpretation of Swimme and Berry. There are many other indigenous cultures that have similar histories of being ecologically centered.

The reductionist, monocultural way of thinking shared by the three interpretations of evolution has a number of implications for the survival of the diverse environmental ethics that have enabled many indigenous cultures to live within the limits and possibilities of their bioregions. The aggressive way in which western science is being promoted throughout the world as the only valid source of knowledge, as well as the equally aggressive promotion of computer mediated thought and communication, support the current globalization of an individually, consumer dependent lifestyle. And with the spread of market economies and the new scientifically derived technologies, the intergenerational knowledge that has served as the basis of relative cultural selfreliance is being further undermined. While many scientists are working to reverse the environmental degradation, the promoters of evolution as the one true explanatory model for understanding the development of cultures continue to give scientific legitimacy to the ideology that represents the West as the model for global development. This, in turn, contributes to undermining the indigenous knowledge systems about how to live less ecologically destructive lives.

#### The Environmental Ethic Implicit in Three Theories of Evolution

All three interpretations of evolution must also be understood as sanctioning a specific environmental ethic. The ethic has been the basis of the earlier phases of the Industrial Revolution, and continues to underlie the digital phase we are now entering. Wilson's genuine concern with reversing the rate at which species are disappearing, and the Swimme/Berry arguments for a change of consciousness that will lead to the Ecozoic Era are laudable. Both expressions of environmental

concern, however, are nullified by the key features of natural selection they accept as omnipresent in all aspects of life. As we have seen, Wilson summarizes Nature's design process, and thus Nature's environmental ethic, in such statements as "genes that confer higher survival and reproductive success...increase in the population....Those that do not, decrease" (1998a, p. 129). To recall another statement by Wilson that supports his view of an environmental ethic as the "survival of the fittest," "Brains that choose wisely posses Dawinian fitness, meaning statistically they survive longer and leave more offspring than brains that choose badly" (1998a, p. 165). Swimme and Berry also identified the survival and reproductive success of genes as the principal measure of success.

The implications of locating moral questions within an evolutionary framework that equates the right moral choice with what contributes to the survival and reproductive success of future generations are problematic for a number of reasons. On one level the ethic dictated by natural selection can be summed up in the late nineteenth century slogan "survival of the fittest." That is, the moral choices in the area of human relationships, and between humans and the environment, are those that promote reproductive success—which easily translates into amassing as much wealth as possible as it leads to better health, longer longevity, and the ability to ensure that the offspring have the same material advantages. For corporations it translates into making decisions that increase profits and adopting new technologies that surpass what is possessed by competitors. Strategies that ensure long-term survival also include increasing market share by undermining the traditions of intergenerational knowledge of cultures that have developed, over hundreds of years, lifestyles that have a smaller ecological footprint. A world monoculture, as envisioned by the computer-futurists and E. O. Wilson, is the ultimate goal of this strategy. Even the evolutionary thinkers who attempt to emphasize that cooperation is the best strategy for long-term survival cannot avoid the logic of natural selection where the better adapted approaches to cooperation survive over their competitors—which may be other forms of cooperation. Indeed, competition within the limit situations of local environments is as basic to the process of natural section as oxygen is to sustaining human life, and both the American public and corporate sub-culture readily embrace it as their guiding environmental ethic.

There is another problem with the argument that Nature selects the better adapted organisms and cultural patterns (memes). While humans may decide that adopting a new technology or way of thinking may give them a competitive advantage, their judgments are made within a different time frame than the time frame within which evolution operates. The longer time frame of evolution means, in effect, that what individuals and corporations decide is the more progressive technology, idea, or public policy may not over, the longer term, be what survives the process of natural selection. An example of misreading what constitutes a more evolved form of culture is Wilson's argument that the scientifically based cultures of the West should displace indigenous cultures. That is, his reading of the Rosetta Stone of evolution leads him to claim that the scientific way of thinking is the most evolutionarily advanced—and to claim that the rest of the world should adopt it. Yet he is unable to guarantee that a world monoculture is better adapted for survival in an environment that is undergoing rapid changes in its life sustaining capacity. What Wilson is proposing, in effect, is an experiment with the symbolic foundations of the world's cultures that is on a colossal scale—one that does not replicate the way in which natural selection has been the basis of diversity.

Hubris and the old problem of ethnocentrism supercede caution in judging the form of culture that is the most evolved. Similarly, using evolution as the basis for a social and environmental ethic will also increase the chances of a collective disaster. At some point the billions of people who are not likely to accept the scientific explanation that the process of natural selection has dictated that their genes are fated for extinction are going to rebel. And if their rebellion does not take the form of revitalizing their traditions of self-reliance, as we are witnessing among many indigenous cultures today, it will take a more violent form. We in the West may then find that the scientific, competitive, and individualistic form of consciousness does not lead to the same level of personal sacrifice and commitment that is now being expressed in cultures based on more ancient mythopoetic narratives. The futuristic thinking of the computer optimists, the promoters of a secular scientific narrative that justifies colonizing the rest of the world with industrial approaches that range from the preparation of food to entertainment and health care, and the increasing use of military force to gain control over natural resources and to suppress alternative cultures, are increasingly being viewed as a threat to the majority of the world's population. Unfortunately, the advocates of the evolutionary model of thinking about cultural development will be the least able to clarify the nature of the double bind whereby the model that predicts reproductive success actually prevents us from recognizing the alternatives to the ecologically and culturally destructive lifestyle that the West is attempting to impose on the rest of the world.

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# Chapter 7 Educating for a Sustainable Future: Mediating Between the Commons and Economic Globalization

In thinking about the role of the educator in an era of economic and technological globalization that is contributing to the further degradation of the Earth's ecosystems, it is important to avoid the mistakes of past and present Western educational reformers. The most prominent of the mistakes made by John Dewey, Paulo Freire, and others in the constructivist tradition of educational reform was to assume that there is one-true approach to learning (Bowers, 2005). For Dewey, it was the experimental method of inquiry while for Freire it was critical reflection--which he claimed would enable students to emancipate themselves from the control of previous generations by continually renaming the world. And for the current proponents of the constructivist approach to learning that is now influencing educational reform in both Western and non-Western countries, students are expected to construct their own knowledge. In arguing that knowledge cannot be transferred from one generation to the next, these educational reformers failed to take account of the ecological crisis. They also ignored the differences in the knowledge and value systems of the world's diverse cultures. In addition they failed to take account of how the Western cultural assumptions they tookfor-granted -such as a linear view of progress, a human-centered world, an autonomous form of individualism, an evolutionary view of cultural development—are also the basis of the West's industrial culture that is a major contributor to the deepening ecological crisis.

If educators are going to contribute to a sustainable future, and to improving the lives of hundreds of millions of people mired in poverty and contaminated environments, they will need to avoid following in the footsteps of these Western educational reformers. This will require a different set of understandings. First, they will need to recognize that there are as many cultural ways of knowing as there are spoken languages—which linguists now estimate at close to 6000, with many (perhaps a third) on the verge of extinction. Linguists are also beginning to recognize that many of these languages encode the intergenerationally acquired knowledge of the characteristics of the local ecosystems that the cultural group depends upon (Nettle and Romaine, 2000). And in terms of the major religions that guide the lives of huge numbers of people, and are the basis of their value and knowledge systems, there is a

growing interest in clarifying how human/Nature relationships are understood. (Tucker, 2003).

Second, future educational reformers must take account of the vast number of bioregions that make up the world's interacting ecosystems. The bioregions, with their distinctive cycles of renewal and vulnerabilities, need to be taken into account in making decisions about what students need to learn—and from whom. For example, in countries where the curriculum still reflects the history of Western colonization, learning what British students are taught about their literary traditions should be replaced by having the students learn about the limits and possibilities of their bioregions, along with the narratives that help to renew the land ethic of their own culture. To cite another example, Guillermo Bonfil Batalla writes about how the state sponsored schools of Mexico introduce students to the geography of other regions of the world, but not the geography of the students' local bioregion (Batalla, 1996). There are many other examples that could be cited where the state sponsored curriculum and methods of teaching are borrowed from the supposedly more "developed" cultures. That is, developed in the sense of being more industrialized and dependent upon a money-based economy.

## **Common Challenges in a World of Diverse Cultures and Bioregions**

While poverty and environmental degradation may have their roots in the beliefs and practices of local cultures, there are two major challenges to achieving a sustainable future and to reducing the world's massive scale of poverty that educators need to address. The first is the cultural roots of the ecological crisis, with the second major challenge being the globalization of the West's industrial culture and the consumer-dependent lifestyle that is required for its continued expansion. They can be identified as separate challenges, but on closer examination we can see that they are closely related. In fact, it would not be incorrect to say that economic and technological globalization is one of the major contributors to the rapid acceleration in the degradation of the increasing rate of global warming that, in turn, is changing the characteristics of local habitats—changes that threaten the prospects of survival for many species. The loss of topsoil can be traced to many sources, as is the case with the decline in the major fisheries of the world. The overuse and misuse of fresh water, along

with the increase in population pressures on already marginally productive environments, must also be added to the list of challenges. These challenges are widely recognized and discussed—but their scope is beyond what can be addressed directly through educational reforms. But what educators can address are the long-term implications of the rapid integration and thus transformation of the world's diverse cultural commons into the global networks of industrial production and consumption.

That is, educators cannot directly change the capitalistic systems and the decisions made in corporate board rooms about where to outsource production facilities-- nor can they directly affect the growing number and size of cars that are spilling tons green house gases into the atmosphere. But they can play a more responsible role in helping to limit the spread of economic and technological globalization by introducing changes in the curriculum and ways of learning that help to strengthen what remains of the local cultural commons. The local traditions of knowledge and patterns of mutual support that enabled communities to be relatively self-sufficient represent what can be called the cultural commons—which are, in turn, dependent upon the environmental commons. While the nature of the cultural and environmental commons are as diverse as the world's cultures and bioregions, what they have in common is that they represent what has not yet been monetized and brought into the industrial approach to markets. In effect, the cultural commons represent cites of resistance to the spread of a money and consumer dependent lifestyle — and thus to the spread of a world monoculture and to the further spread of poverty for those who lack the means to participate in a money economy. Third world activists, and even social groups within the West, are resisting the loss of their cultural commons, but the dominant trend is that the cultural traditions of preparing and growing of food, of healing, of mentoring in the arts and participating in ceremonies, of self-reliance in the practice of craft skill and knowledge, are being replaced by industrial produced products and services that require participating in a money economy—which, in turn, contributes to the degradation of the environment. Even widespread reliance on the cell phone and the computer are examples of how such basic aspects of human existence as thought and communication are dependent upon being able to participate in a money economy—and to becoming addicted to acquiring the latest technology.

The environmental commons are also being undermined by the logic of the market and corporate ownership. Water, which previously was freely available to the members of the community, is rapidly being a commodity that must be purchased. Access to sources of protein and fiber are similarly being incorporated into a money-based economy. The use of Western technologies, including the genetically engineered seeds, is increasing the cost of growing food as well as contributing to the further contamination of local sources of water. Depending upon the traditions of the culture, other examples of how what remains of the cultural and natural commons are being transformed into new products and markets can easily be cited.

The globalization of the West's culture is widely justified on the basis that it is the expression of progress and modern development—and that it contributes to spread of freedom and democracy. While these neo-liberal words mask the spread of poverty as the industrial mode of production and consumption undermine the local knowledge systems that were the basis of less consumer dependent lives, there is another characteristic of the West's industrial culture that goes largely unnoticed—yet has very important implications for how educators think about educating for as ecologically sustainable future. As Kirkpatrick Sale observes, in order for the industrial culture to expand it needed to bring about fundamental changes in the world's cultures—changes that would increase dependence upon Western technology and consumerism. Sale explains the changes that were and still are required in the following way:

All that 'community' implies—self sufficiency, mutual aid, morality in the marketplace, stubborn tradition, regulation by custom, organic knowledge instead of mechanistic science—had to be steadily and systematically disrupted and displaced. All of he 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 without interference, influenced merely by the invisible hands and inevitable balances and all the rest of the benevolent free-market system. 1995, p. 18

To explain the cultural transformation required by the incessant drive to create new markets, which we now refer to as economic globalization, it was necessary to emancipate individuals from the intergenerational knowledge of their communities. Thus, the current goal promoted by many educational reformers of fostering autonomous

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individuals who supposedly constructs their own knowledge turns out to be what is required by the industrial, consumer-based culture. Later, I shall explain more fully how the increasing reliance on computer mediated learning in classrooms also contributes to the form of individualism required by the industrial culture.

As mentioned earlier, what remains of the cultural commons is dependent upon the intergenerational knowledge that is the basis of a community's traditions of self-sufficiency and mutual support systems. The community's traditions that enable plants, fiber, other natural resources to be turned into healthy meals, clothes that have been adapted to local weather patterns, and sustainable and energy efficient technologies and buildings, are passed on through face-to-face communication, mentoring relationships, embodied learning, ceremonies, and so forth. Due to the failure of educational reformers in the West to understand that the word "tradition" is as broad and complex as the word "culture", traditions became viewed as constraints on individual self-expression and autonomy. This led Dewey to argue that traditions are habits that enslave the individual "just to the degree in which intelligence is disconnected from them". Dewey further claimed that "routine habits are unthinking habits" and thus must be continually reconstructed through the community's reliance upon the experimental method of inquiry (1918, pp. 58-59).

Paulo Freire's emphasis on the need for each individual, and thus each generation, to rename the world of the previous generation also was based on the idea that there is only one legitimate approach to knowledge: namely critical reflection. To quote him directly, in <u>Pedagogy of the Oppressed</u>, he writes that "to exist, humanly, is to <u>name</u> the world, to change it. Once named, the world in its turn reappears to the namers as a problem and requires of them a new <u>naming</u>" (1971 edition, pp.76.). He along with his current followers are promoting educational reforms that would, if put into practice, undermine the knowledge systems of other cultures and thus their cultural commons as sites of resistance to the West's messianic agenda of economic colonization (Bowers and Apffel-Marglin, 2005). Other educational reformers who have borrowed from Dewey, Freire, and recent promoters of various interpretations of progressive education the idea that students should construct their own knowledge and values are also contributing, insofar as their reforms are being implemented, to a world monculture that is both environmentally destructive and increasingly dependent upon consumerism. Ironically, they use the same language to justify

the undermining of the cultural commons that the Western educated elites use to justify their colonizing agenda: freedom, emancipation, individualism, progress, development, democracy.

The increasingly widespread use of computes in the classroom, which I referred to earlier, also contributes to undermining the local cultural commons—which is often a source of knowledge of how to live within the limits of the local bioregion. As I explain in Let Them Eat Data (2000), which has recently been translated into Japanese and Chinese, computers are not a culturally neutral technology—which must be taken into account in thinking about educating for a sustainable future. Computers are useful—indeed, now indispensable—in many areas of cultural life. They are even useful in terms of enabling students to access information and ideas that would not otherwise to be available to them. However, there are two inherent characteristics of computers that have gone largely unrecognized. First, computers reinforce a pattern of thinking that is also the basis of the West's industrial, consumer-oriented culture. These patterns include: (1) thinking of language as a conduit in a sender/receiver process of communication; (2) viewing the individual as constructing knowledge that is based on data and information accessed through the computer; (3) thinking of abstract, out-of-context data and information as being free of cultural influence; (4) thinking of the past and future as matter of the individual's subjective judgments and shifting preferences; and (5) viewing moral values as individually chosen. In short, the pattern of thinking reinforced through the use of computers, while being highly useful in many areas, contributes to undermining the world's diverse cultural ways of knowing—and thus the cultural commons.

When we consider how the cultural commons are renewed in ways that reduce the human impact on local ecosystems, we find the second characteristic of computers that reflects the limitations of what can be digitized without being fundamentally transformed. A summary of what cannot be digitized without being transformed in ways that reflect the forms of representation that have high-status in the West also turns out to be a summary of the shared characteristics of renewal within the world's diverse cultural commons. What cannot be digitized and communicated through a computer—and, by the same token, what is essential to the intergenerational renewal of the cultural commons includes the following: (1) the different mythopoetic narratives and metaphorically layered languages that carry forward

the knowledge and values systems of the world's diverse cultural commons; (2) the importance of cultural and place-based contexts that have a profound influence on the meaning of what is being communicated; (3) the narratives and other face-to-face communication that reproduce the culture's traditions of moral reciprocity; (4) the traditions of the community that are re-enacted and modified as part of everyday life—including the importance of mentoring relationships; (6) the moral codes that are intergenerationally passed along in the process of being born into a language community. Summaries are never adequate, and this summary fails to mention the traditions of intergenerational knowledge that are sources of injustice, oppression, and ignorance of the behavior of natural systems. But it does highlight the inability of computers to make available to students the forms of knowledge and embodied relationships that are integral characteristics of how the cultural commons are renewed and passed on to the next generation. Computer mediated learning enables the student to access vast sources of abstract information, but it cannot provide the student the experience of learning in a mentoring relationships—and it is a poor source of local knowledge. In effect computers reproduce the problem that concerned Batalla; students learn about an abstract and distant world, while being conditioned to ignore the forms of knowledge, patterns of mutual aid and moral reciprocity, and the characteristics of the bioregion that their own community depends upon.

There are a number of implications that educators should consider when the students' learning is being mediated by this colonizing technology. Helping students understand the cultural non-neutrality of computers is essential if they are to have the ability to know when computers should and should not be used. If students are left with the idea that technology, including computers, as a culturally neutral tool, decisions about their use will more likely be dictated by the Western assumption that equates the use of technology with a modern, and progressive way of thinking. To counter this taken-for-granted way of thinking, educators should continually engage the students in a discussion of the cultural amplification and reduction characteristics of computers by giving particular attention to what aspects of the cultural commons are being marginalized. Expanding the discussion to include a consideration of the differences between computer mediated communication and accessing of information. and the experience of face-to-face, intergenerational patterns within their own as well as other cultures, will help the students to recognize the Western conceptual patterns

reinforced through this technology. For example, students should be encouraged to consider the difference between obtaining abstract information about how to build something and perform as task, and learning that is based on a mentoring relationship. They might also be asked to consider the difference between reading about a ceremony and participating in one, as well as the difference between reading about a narrative in the abstract and participating in the culture's way of passing on and renewing its collective memories.

Educators also need to be aware of the cultural assumptions that are taken-for-granted by the people who create the educational software. Students are not just encountering simulated events and problem solving situations that appear on the monitor. Rather, they are entering the conceptual and moral world of the people who create the software—as well as the mind-set of those who did the basic computer engineering and wrote the programs that run the educational software. The authority of print and other abstract systems of representation that appears on the computer monitor is enhanced by the cultural assumptions held in the West; namely, that what appears in print is factual and objective. The educational uses of computers, in effect, help to perpetuate the same Western biases that represented print as the basis of high-status knowledge, and the oral tradition as a source of cultural backwardness and superstition. And if educators are to foster an understanding of those aspects of the cultural commons that represent alternatives to market-based consumerism and its environmentally destructive effects, they will need to help students to recognize the importance of the community's oral traditions that include stories of environmental mistakes as well as stories of how to adapt cultural practices to the sustaining characteristics of the bioregion.

#### Educating for Sustainability Within a World of Diverse Cultures

Differences in cultures, as well as differences in how the environmental crisis is impacting different regions of the world, do not alter the role that teachers should now take on. The Western industrial, consumer dependent culture now has a global reach. This means that, regardless of the status of the traditions of different cultures,Western products and approaches to production, language, corporate logos, and patterns of thinking are becoming visible and increasingly relied upon in even the most distant regions of the world. This may take the form of Western fast food outlets, television programs, advertising, cell phones, computers, clothes with corporate logos-- and even the desire to move to urban areas where opportunities for work and thus participating in a money based economy seem the escape route from poverty.

While there are important differences in the degree that the world's diverse cultural commons have been influenced by the colonizing nature of the West's industrial culture, the basic reality is that educators, whether in a classroom in Bolivia, South Africa, or Taiwan, must now understand their role as that of a cultural mediator. That is, their responsibility is to mediate between the influence of the Western industrial-consumer oriented culture and the ecologically sustaining traditions of the local cultural commons. Mediating involves clarifying what is otherwise taken-for-granted within the local cultural commons as well as what is taken-for-granted about the presence of Western technologies, values, and patterns of thinking. Mediation in this sense also involves providing students with the language that is needed for understanding and making decisions about which aspects of both the local cultural commons and the foreign influences that contribute to reducing poverty and social inequities, the growing dependence upon a money economy, and the self-renewing capacity of the local ecosystems.

The problem with this recommendation is that few educators acquire the necessary background knowledge from their university experience that is necessary for their role as cultural mediators between traditions, and between the forces of modernization and the selfrenewing characteristics of natural systems. The following represents a more specific list what educators need to be prepared to clarify and thus to help the students to examine in a more balanced and ecologically informed manner.

<u>1.Clarifying the differences between the local cultural and environmental commons and how</u> the industrial culture continues to turn both commons into new markets. As most of the students' own cultural patterns are taken-for-granted the need to clarify how they contribute to the self-sufficiency and moral reciprocity within the cultural commons, as well as their impact on the bioregion, is often overlooked. The correspondence between what both the educator and students take-for-granted is seldom the focus of discussion—yet it is the aspects of daily life that need to be examined as cites of resistance to destructive foreign influences, and as sources of environmental degradation. Similarly, the influence of Western products, images of what constitutes success and happiness, and ways of thinking is usually represented as the expression of progress that too often is also taken-for-granted—and thus not questioned. The educator's task is to provide the language that makes explicit and contributes to the process of clarifying the long-term and eco-justice consequences of renewing local traditions and of adopting what the West represents as progress. In terms of clarifying the different aspects of the local cultural commons it may be necessary to adopt more embodied approaches to learning—including learning from mentors and elders of the community. Bringing all aspects of the taken-for-granted cultural commons under the gaze of critical inquiry can lead to the Western form of individualism, so it is vitally important that the educator recognize those aspects of local knowledge and values that should be part of the discussion of what contributes to a sustainable future.

2. Clarifying how the root metaphors that underlie the West's industrial/consumer culture influence the way of thinking within the local cultural commons. The root metaphors that serve as the basic interpretative framework for understanding how different aspects of cultural life are understood-ranging from education, medical practices, agriculture, architecture, the application of scientific discoveries, and so forth-represent an especially important and difficult challenge for educators who take seriously their responsibility as cultural mediators. Part of the challenge is in recognizing how both the language of the students' cultural commons as well as the language that reproduces the Western patterns of thinking encode and carry forward the deepest symbolic foundations of these two cultures—and how adopting the assumptions of the West represents a form of cultural colonization. In the West, the dominant view of language is that it is a conduit in a sender/receiver process of communication; and this view of language is reinforced when foreign students pursue their advanced degrees in Western universities. The reality is that when a person is born into a language community she/he learns to think in terms of the assumptions and categories that have been passed down over generations through the languaging processes of the culture-and these assumptions and categories are the basis of the person's taken-for-granted experiences. Educators need a more complex and accurate understanding of how the language provides the assumptions that influence how the students think, as well as what they will ignore.. This means that the educator needs to be able to recognize the dominant root metaphors that underlie the West's approach to economic and technological globalization. These include the root metaphors of mechanism (thinking of everything including organic processes as mechanistic in nature);

anthropocentrism (thinking of the environment as a resource for humans); individualism (thinking of the individual as the source of ideas, values, and as essentially free); progress (thinking of change as contributing to a linear form of progress and as in opposition to traditions); economism (reducing activities, relationships, and products to their market value); evolution (thinking of cultures as evolving from a state of backwardness to being developed and modern—with the West as representative of the most evolved). The educator, regardless of the context of the cultural commons, needs to be able to recognize how these root metaphors underlie the various aspects of Western culture that are encountered within the students' daily life—and to clarify how they differ from the basic assumptions of the local culture. Again, the discussion needs to be centered on whether the local or foreign deep patterns of thinking contribute to a sustainable future.

3. Clarifying the assumptions that underlie Western science and its role in the development and expansion of the West's industrial culture. Mediating between the local cultural commons' approach to learning about the limits and possibilities of the local ecosystems and the assumptions that underlie Western science—which too often has led to the development and use of technologies that have degraded the self-renewing capacity of natural systems-is yet another responsibility that has direct implications for whether the diversity of cultures and natural systems will be sustained. The ways in which Western science undermine local knowledge of natural systems, as well as how it leads to technologies that expand the hegemony of the West's industrial culture, need to be clarified and examined as part of the education in both Western and non-Western cultures. Scientists have recently turned their attention to studying the dynamics of natural systems, but Western science continues to be a major contributor to the enclosure of both the local cultural and natural commons. 4. Clarifying the differences between how technologies are used within the local cultural commons and how technology is understood and used n the Western cultures. In the West, technology is viewed as a culturally neutral tool and, without recognizing the contradiction, as the latest expression of progress. A number of scholars, from Jacques Ellul and David Noble to current critics of the misuse of computers, have pointed out how technologies mediate

between cultural traditions through what they reinforce and what they marginalize. The educator's responsibility as a cultural mediator is to help students understand what different technologies reinforce in terms of cultural values, human relationships, forms of knowledge and dependencies-- as well as who gains and who loses. Helping students to focus attention on the practices that accompany the use of different technologies and to acquire the language necessary to thinking and communicating about the cultural and environmental impact of their use is essential for them to develop the communicative competence necessary for bringing decisions about the adoption and use of different technologies into the decision making process of the community. The adoption of computers, genetically altered seeds, cell phones, agriculture and manufacturing machines, and so forth are accompanied by benefits and loses—with the latter being understood as the further enclosure of the commons and thus the expansion of a money-dependent economy.

5. Clarifying the differences between how traditions are understood by members of local cultural commons and by proponents of globalizing theWest's industrial culture. If educators understand, rather than take-for granted, the dominant assumptions in the West they will recognize why the elite groups that are promoting a technologically based consumer lifestyle have such a simplistic way of thinking about the nature and importance of traditions. Most graduate students in my university classes associate traditions with holidays and family gatherings, while viewing traditions in general as obstacles to social progress and as a source of backwardness. What is not understood by most graduates of Western universities, and the general public, is that traditions represent every aspect of culture that is re-enacted over four generations—which is the time span that it takes for people to lose site of the beginnings of the traditions. As a mediator between different internal and external cultural pressures, the educator needs to help the students to identify the local traditions that contribute to a less money-based daily life, as well as the traditions that help to sustain previous gains in the achievement of social justice and an environmental ethic. Mediating also requires helping students understand the view of tradition that is held by the promoters of technology and the exploitation of new markets. This is also a tradition, but one that is committed to overturning all traditions in the name of science, progress and increased profits. In addition, the educator also needs to help the students examine the traditions within the cultural commons that oppress certain members and groups.

<u>6.Clarifying the difference between how individualism is understood in the West and in non-</u><u>Western cultures</u>. The current view of individualism in the West is one of the most powerful and central images associated with modernity and social progress. The educator who is

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mediating between the way the individual is viewed within the local cultural commons and the image promoted in the West should understand that the way current Western view of individualism has changed over time—from that of a subject in the Middle Ages, to a citizen at the time of the French Revolution, to an individual project of self-creation and expression at the turn of 20<sup>th</sup> century, to today's emphasis on happiness, material success, and self-realization. The current effort to based educational reform in Western and non-Western countries on constructivist theories of learning represents a continuation of the Western myth that individual should be emancipated from the knowledge of earlier generation—and this can only be achieved as students construct their own knowledge and learn what interests them. In effect, this view of the individual is the Trojan Horse that helps to break down what remains of the local sites of resistance to the West's colonization efforts.

Perhaps an even greater challenge facing educational reformers is in convincing university professors to take seriously their role as cultural mediators between the high-status forms of knowledge that are the basis of the West's industrial culture and the forms of knowledge that are essential to the world's diversity of cultural and environmental commons. Unfortunately, becoming aware of the ecologically problematic cultural assumptions that were the basis of their own graduate studies is especially difficult-particularly since they have been rewarded for basing their academic careers on these assumptions. But mediating as the local public school level cannot wait for a major shift in the culture of university professors. Educators in the public schools, as well as those who function in other social settings, must begin to address the challenge of clarifying the difference between local beliefs and practices and the most visible aspects of Western culture, including the patterns of thinking and values that accompany the use of Western technologies and consumer fads. And the criteria for assessing what needs to be conserved and thus intergenerationally renewed as well as what needs to be changed or abandoned entirely, is whether it contributes to a more self-sufficient community (that is, less dependent upon a money-based existence), and to a smaller impact on the natural systems that are already in state of rapid decline.

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## Chapter 8 The Imperialistic Agenda of Moacir Gavotte'Eco-Pedagogy

While attending the international conference on Lifelong Citizenship, Participatory Democracy, and Social Change 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 ecopedagogy. 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 unprecidented 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 threir 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 ecopedagogy 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 ecopedagogy (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 neoliberal 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 virture, 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 Gadatti 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 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 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-pedaggoy 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 highstatus 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 nonmonetized 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 ecopedagogy 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 inexhaustable, 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 <u>Ancient Future: Learning from Ladakh (1992)</u>, Frederique Apffel-Marglin's (with PRATEC) edited book, <u>The Spirit of Regeneration: Andean Culture</u> <u>Confronting Western Notions of Development</u> (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 <u>Mexico Profundo</u> (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 ecojustice pedagogy is based on the recognition that conserving the commons, including earth democarcy, is partly dependent upon the exercise of critical reflection. For example, an ecojustice 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-pedagoy 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 have 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.

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