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Understanding the Connections Between Double Bind Thinking and the Ecological Crises: Implications for Educational Reform

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Introduction

The 2007 and 2009 conferences of the American Educational Research Association (AERA) was especially notable, but for the wrong reasons. They were attended by over 12000 educators from around the world, and it took place well after scientific journals, the public media, and Al Gore's film "An Inconvenient Truth" had contributed to a profound shift in the public's awareness that the world is facing an ecological tipping point that will alter life on this planet. In America, which lags behind the level of ecological awareness of many European countries, public opinion has recently shifted, with surveys indicating that 70 percent of people now think that the ecological crises is a major concern that needs to be addressed. Reports on global warming, as well as on changes in the chemistry of the world's oceans, and the spread of extreme weather patterns, were headline news in the newspapers, on television, and on talk radio. Even evangelical Christian groups were announcing that the ecological crises were a sign that they were failing as stewards of God's creation.

However, for the professors of education who had assembled in Chicago and more recently in San Diego, the old paradigm still prevailed. There were literally thousands of papers presented on various aspects of curriculum theory, accountability, constructivism, diversity issues, and so forth; with only fifteen papers addressing environmental education and eight papers that framed environmental education issues within the new ecological paradigm. That the West's cultural practices and ways of knowing are major contributors to global warming, and that the West's approach to education is complicit in fostering a consumer-dependent lifestyle that is overshooting the sustaining capacity of the Earth's natural systems (Hawken, Lovins, Lovins, 1999) was only discussed in a couple of the papers. The extent to which over 12,000 participants were still under the hold of the paradigm that produced the industrial revolution, now its digital phase of development, can be seen in the fact that less than a hundred participants were engaged in discussions of educational reforms based on the new paradigm that represents humans and the diversity of the world's cultural ways of

knowing as embedded in and dependent upon the self-renewing capacities of the Earth's ecological systems.

It was quite obvious that the participants at the AERA conferences had heard about the various forms of environmental degradation, as well as the plight of people who are being displaced by environments that can no longer support human life. Yet, their thinking continues to be based on the same cultural assumptions that have been taken-for-granted for hundreds, even thousands of years. The assumption of an anthropocentric universe can be traced back to the Book of Genesis, and the assumptions about the progressive nature of change, individualism, and a culture-free rationality, go back hundreds of years.

The main theme of this year's AAACS conference was based on the recognition that educational reforms should contribute to a profound paradigmatic change—one that leads to ways of thinking and acting that have a smaller ecological footprint. The question is: which approach is most likely to succeed in bringing about the radical changes that are required to slow the rate of environmental degradation. Should educators return to the Social Darwinian thinking of John Dewey who claimed that experimental inquiry is the only valid approach to knowledge, to constructivist learning theorists who share many of the deep cultural assumptions that the industrial /consumer-dependent lifestyle is based upon, to the social justice liberals who want to ensure that educational reforms enable marginalized groups to participate equally within the capitalist economy that is overshooting what natural systems can sustain, to the scientists who are now claiming that cultural beliefs and practices are cultural “memes” that must meet the same test of Darwinian fitness as genes? I think not!

Instead of looking to the current proponents of educational reform, we should consider the strategies of the feminist movement that has achieved a modicum of success in changing people's taken-for-granted assumptions, as well as many cultural practices based on centuries-old assumptions. While the feminist movement has had limited success in achieving greater equality in many areas of social life, it has not yet led to the paradigmatic change that would enable humans to live less environmentally destructive lives. Nevertheless, the movement demonstrated an approach to change that is now being duplicated by various environmentally oriented groups—ranging from architects to organic farmers. That is, the feminists challenged the language of patriarchy and the institutional systems that this language sustained. In naming what was part of people's tacit understandings, they developed a vocabulary that made explicit what previously was not part of the public discourse. This process of renaming what was previously taken-for-granted as the normal, progressive way of doing things also can be seen in how Rachel Carson changed the meaning associated with DDT from a chemical that gave humans more control over their environment to that of a life threatening agent. The introduction of other words into the vocabulary that had sustained for hundreds of years the West's efforts to globalize the industrial system of production and consumption, and to view the exploitation of the natural systems as signs of progress, is also bringing about important changes that are slowly moving a small segment of society toward a shift in paradigms. Words and phrases such as “local”, “organic farming”, “global warming”, “acidification of the oceans”, “greening”, “precautionary principle”, “slow food”, and so forth, both serve to make explicit what is problematic about the language of the industrial-consumer-

anthropocentric culture and to foster an awareness of less environmentally destructive cultural practices.

Scientists estimate that we may have from 10 to 50 years before we reach the tipping point where human action will be unable to slow the rate of global warming. When we compare this time frame with the length of time it took the feminists to bring about a change in consciousness and cultural practices among a small segment of the population, and the time it took various environmental groups to rediscover the community and environmentally enhancing alternatives to being compliant consumers, the challenge of introducing fundamental changes in the still dominant cultural assumptions is exceedingly daunting. Economic globalization, which is driven by governments and corporations that equate the expansion of markets and profits with progress, is still the hegemonic force in the world today (Stiglitz, 2002). Nevertheless, the feminist, environmental, and social justice movements make clear what pathway needs to be followed if we are to bring about a different form of consciousness.

It is especially critical for educational reformers to recognize how the languaging processes they reinforce in the classroom continue to perpetuate the cultural practices that are overshooting what the environment can sustain (Stibbe, 2005; Grabowski, 2007). It is ironic that while educators from early grades through graduate school rely primarily upon the spoken and written word, few are aware of how language reproduces the cultural assumptions that eco-justice activists are challenging (Bowers, 2001). While environmentally oriented scientists are increasingly relying upon an ecological interpretative framework, most teachers and professors continue to reinforce the language framed by the root metaphors of individualism, progress, anthropocentrism, mechanism, etc., that gave conceptual direction and moral legitimacy to the industrial/consumer oriented culture— and that continue to perpetuate silences regarding how to live less consumer dependent and more community-centered lives. The cultural assumptions encoded in the language employed in classrooms also undermine an awareness of the community-centered intergenerational traditions that enable people to live less consumer-dependent lives.

Linguistic basis of double bind thinking

To paraphrase Albert Einstein, we cannot successfully resolve a problem if we rely upon the same mind-set that created it. This observation, as well as the experiences of groups working to achieve greater social and eco-justice, highlights the problem Gregory Bateson referred to as double bind thinking (Bateson, 1972). Basically, double bind thinking involves relying upon the misconceptions of the past when addressing current problems. The double bind occurs when the solution magnifies the problem, such as pursuing greater economic growth when it destroys the natural systems. Another example of double bind thinking, where the assumptions from the past continue to frame current thinking, can be seen in the widespread effort to base educational reforms on the idea that students should construct their own knowledge. Constructing their own knowledge, in effect, will leave them ignorant of the accumulated and time-tested intergenerational knowledge and skills necessary for being more self-sufficient in preparing meals, growing gardens, participating in the creative arts, knowing the traditions of civil liberties and patterns of moral reciprocity, and so forth. This

double bind, where the culturally specific assumption about the freedom of the individual is made the cornerstone of a supposedly non-repressive approach to education, results in individuals becoming more dependent upon the industrial system to supply what they lack the skills to do for themselves. What various constructivist learning theorists ignore is that the industrial culture requires the anomic individual who lacks the community's fund of knowledge of how to live in ways that are less dependent upon consumerism.

One of the reasons why classroom teachers and university professors are unaware of the double bind thinking they promote in their classrooms is that most assume that language functions as a conduit in a sender/receiver process of communication (Reddy, 1979). This myth sustains other myths essential to the sub-culture of the educational establishment: namely, that there is such a thing as objective knowledge (as though it does not originate from an individual's culturally influenced observation and interpretation), and that the rational process is free of cultural influence (as though thinking is not based in part on metaphors that are dependent upon analogs constituted at an earlier time within the culture). The conduit view of language also contributes to another misconception, which is that words such as individualism, democracy, freedom, data, etc., have a universal meaning and thus are free of specific cultural contexts and tacit understandings (Gouldner, 1979, pp. 28-29). The major problem associated with the conduit view of language is that it hides the metaphorical nature of language, and how metaphors reproduce the schema of understanding (analog) that prevailed at an earlier time over competing analogs. Martin Heidegger put it this way: "when an assertion is made, some foreconception is always implied; but it remains for the most part inconspicuous, because language already hides in itself a developed way of conceiving (Heidegger, 1962, p. 199). School teachers and university professors tend to ignore that words, as metaphors, have a history-- thus making it unnecessary to ask whether the meaning associated with the word (the analog that is the source of the taken-for granted conceptual schema) is appropriate to the current cultural and environmental setting.

If classroom teachers and professors are to help students acquire the language necessary for understanding that their existence, as well as that of future generations, involves interdependent relationships, and not the Cartesian gaze of the supposedly autonomous individual, they will need to understand that the meaning of image words such as "tradition", "progress", "individualism", "community", and so forth is influenced by the root metaphors that are largely taken for granted. The list of root metaphors that have influenced the development of high-status forms of thinking and cultural practices in the West include patriarchy, anthropocentrism, mechanism, individualism, progress, economism, and, now, evolution. Just as patriarchy is being challenged in some cultures, ecology is gaining ground as a root metaphor within certain segments of society—even though it has been the basic conceptual/moral framework in many indigenous cultures for thousands of years. Root metaphors, such as mechanism, provide the conceptual framework that is used to understand a wide range of phenomena—from thinking of the universe as a giant clockwork as Johannes Kepler put it in the seventeenth century, to thinking of the human body as a survival machine as Richard Dawkins claims in his book *The Selfish Gene* (1976), to how E. O. Wilson refers to the "brain as a machine" and thus only "a problem in engineering" in *Consilience* (1998), to how a plant cell is described as having such

industrial-like components as a “powerhouse”, “solar station”, “recycling center”, and “production centers”.

Recognizing the role of root metaphors in double bind thinking

Image words (or iconic metaphors) such as “creativity”, “intelligence”, “community”, and “wild” take on different meanings depending on which root metaphors are taken-for-granted within the culture. Before the root metaphor of progress became part of taken-for-granted patterns of thinking, creativity was understood as best exemplified in the aesthetic achievements of the early Greeks. It involved, in effect, going back to a classical period, rather than today’s idea of creativity-- which is equated with what is new and innovative (regardless of its aesthetic qualities). Similarly, when the worldview that sustained feudal cultures was taken-for-granted, the “individual” was understood as a subject. The root metaphor of an anthropocentric universe is clearly evident in the textbook explanation that “community” is where people work, play, and shop. Whereas an explanation based on the root metaphor of ecology would include, in addition to the humans, the plants, animals, and the other interactive elements that make up the ecosystem. That is, the definition of community would be inclusive of the local cultural and natural ecology.

The first step in making the transition to thinking within a new paradigm is for educators at all levels, from the earliest grades through graduate level classes, to be aware of the root metaphors that frame interpretations, that reproduce past misconceptions and prejudices, and are responsible for the silences that have put us in a collective situation where it may be too late to slow the rate of global warming and other forms of environmental degradation. This will be an exceptionally difficult task as the root metaphors that underlie the continued globalization of the industrial/consumer-dependent culture have also marginalized an awareness that most of our cultural knowledge is taken-for-granted—and becomes part of the individual’s natural attitude as she/he participates in the multiple languaging processes that sustain everyday relationships (Berger and Luckmann, 1967). That is, most classroom teachers and university professors emphasize the explicit and too often context-free forms of knowledge, and ignore that most of the student’s cultural knowledge is tacit, contextual, and taken-for-granted. The emphasis on the abstract thinking encoded in print, first in books, and now on the computer screen, contributes to this silence about the hold that taken-for-granted knowledge has on how people think. Face-to-face communication in the classroom is largely a matter of putting into the spoken word the abstract knowledge learned from the printed page. This is profoundly different from the more context-dependent forms of intergenerational communication that sustain the cultural commons as well as the moral norms governing the environmental commons.

The cultural and environmental commons

Before going into the pedagogical and curricular reforms that will avoid reproducing the dominant paradigm, it is necessary to identify some of the characteristics of cultures that have achieved a more sustainable balance between the market and other aspects of community life. In the chapter titled “Market”, Gerald Bertoud, in critiquing from Third World perspective the West’s understanding of markets, observes:

We are all subject to the compelling idea that everything that can be made must be made, and then sold. Our universe appears unshakeably structured by the omnipotence of technoscientific truth and the laws of the market....What must be universalized through development is a cultural complex centered around the notion that human life, if it is to be fully lived, cannot be constrained by limits of any kind. To produce such a result in traditional societies, for whom the supposedly primordial principle of boundless expansion in the technological and economic domains is generally alien, presupposes overcoming symbolic and moral 'obstacles', that is, ridding these societies of various inhibiting ideas and practices such as myths, ceremonies, rituals, mutual aid, networks of solidarity, and the like. (in Sacks, 1973, pp. 71-72).

What Berthoud is describing in relation to traditional societies are the cultural and environmental commons that vary from culture to culture, and from bioregion to bioregion. While many readers will associate the commons with a public space and with the enclosure movement in England that followed the introduction of new crops, farm technologies, and the beginning of the Industrial Revolution, the cultural and environmental commons still exist around the world—including in rural and urban areas of the West.

The current misunderstanding about the existence of the cultural and environmental commons, even in their degraded condition, again reflects the problem of ignoring that words have a history, and thus that the analog that frames their meaning should not be derived from a profoundly different past, or associated only with a public space such as the Boston Commons. The commons, that is, what was shared among the members of the group through mutually supportive relationships, originated with the first humans living on the savannas of what is now called Africa. The commons then, as well as now, can be thought of in terms of the cultural commons and the environmental commons. The cultural commons includes the intergenerational knowledge of how to prepare a meal, the narratives that pass on the group's moral values (which may still not represent our notions of social justice), knowledge of and skill in building something useful, knowledge of the medicinal characteristics of plants, expressive arts and ceremonies, local language, mentoring in a wide range of crafts and artistic talents, and earlier, at the time of the Magna Carta in 1215, the beginnings of such shared civil liberties as habeas corpus. The environmental commons, then and now, include shared access to forests, rivers, oceans, air, animals, air, and so forth.

Forces enclosing the cultural and environmental commons

There is another metaphor that describes an equally ancient practice—and that word is “enclosure”. In the early stages of human history, enclosure (that is, the process of excluding certain groups from equal access to the cultural and environmental commons), took many forms. These included exclusions based on gender distinctions, the emergence of hierarchically organized societies based on status and class differences, mythologies that invested special individuals with extraordinary rights and privileges, and so forth. The

introduction of private property and a money economy have also played key roles in how the process of enclosure occurred in different cultures. It is important for educational reformers to understand that the same tensions exist between the intergenerational knowledge, skills, and mutually supportive relationships that still exist in rural and urban areas in the West and the increasingly powerful forces of enclosure that are driven by the market liberal ideology that has no self-limiting principle (Daly, 1991). The modern secular trinity of science, technology, and capitalism, as well as the silences of classroom teachers and university professors about the nature and importance of the cultural and environmental commons, along with how educators reinforce many of the cultural assumptions that underlie the current expansion of the industrial/consumer oriented culture, lead most people to accept as part of the natural progression in life the transformation of what was previously shared outside of a money economy into new products and dependencies.

While social justice oriented professors are attempting to reverse the long-standing traditions of enclosure based on race, class, and gender, and environmentally oriented scientists are working to reverse the enclosure of the environmental commons, the forces of enclosure continue to gain ground. For example, various conservancy groups are attempting to reverse the widely held taken-for-granted cultural assumption that everything must be privately owned or turned into a commodity or monetized service. Unfortunately, their efforts are being undermined as corporations are now patenting gene lines as well as the indigenous knowledge accumulated over centuries of careful observation of the characteristics of the local bioregion. Other examples include the municipal water systems as well as aquifers located on public lands that are being taken over by corporations. Corporations, as well as governments in the pay of corporations, can now rely upon the World Trade Organization to repeal local restrictions on their right to enclose different aspects of the environmental commons. The enclosure of ethnic traditions of growing and preparation of food is gaining ground as food becomes more industrialized, just as intergenerational knowledge of healing is being taken over by the pharmaceutical industry. The creative arts, sports, games, and even such supposedly ecologically friendly activities as birding and jogging are being turned into market opportunities. The widespread use of cell phones and other electronic forms of communication encloses and excludes the knowledge of the older members of the community who are carrying forward the intergenerational knowledge of gardening, creative arts, working with clay, metal, wood, various fibers, and so on. These new technologies, in effect, undermine both face-to-face intergenerational communication and the importance of tacit knowledge that are essential to mentoring relationships that lead to self-reliant and mutually supportive skills. They also reinforce the illusion of being an autonomous individual, which the industrial culture transforms into being a customer. (Sale, 1995, p. 18).

The cell phone, like the computer games that now occupy so much of people's free time that previously may have involved talking with neighbors and participating in mutually supportive activities, is an example of how the many forms of enclosure are interpreted as the latest expression of progress. One only has to ask if the cell phone generation has any understanding of the combination of techno-scientific, market, and ideological forces that are undermining the traditional values and institutions that protected people's privacy, and the political checks and balances necessary in maintaining a democratic society, Do they understand the Janus nature of

computers, and other modern technologies? Do they recognize that bottled water and now restaurants in Mexico City where oxygen can be purchased represent the further enclosure of what remains of the environmental commons?

It would be unfair to leave the impression that the cell phone generation is unique in participating in the enclosure of the cultural and environmental commons—as the majority of adults who have gone through the educational system are also trapped in the mind-set that equates the expansion of markets, and the accompanying loss of intergenerational knowledge of how to live less consumer dependent lives, with progress. It is also important to recognize that even though classroom teachers and professors daily participate in different aspects of their local cultural commons (that is, in activities, relationships, and in the exercise of skills that have not been entirely monetized) few are aware that this ancient pathway of human development needs to be revitalized if we are to slow global warming and the other changes occurring in the Earth's ecological systems. Silence and the loss of memory are also powerful forms of enclosure that lead to greater dependence upon the money economy --which is an increasing problem for billions of people, including people in the industrialized West.

The aspects of the cultural commons being discussed here represent the more community-centered activities, skills, knowledge that are less dependent upon consumerism—and thus are less dependent upon the industrial processes that are major contributors to global warming. An ethnography of the forms of enclosure existing in many cultures, particularly the forms of enclosure related to gender, social class, ethnic, racial, other prejudices, will reveal how they are sustained by the intergenerational narratives—and by the shared language that carries forward the cultural group's way of understanding the attributes of the other participants in the society. Social justice activists who are working to overturn these forms of enclosure are really working to ensure that these marginalized groups have equal access to what is being identified here as the constructive, life-enhancing aspects of the cultural commons.

However, such social justice activists often ignore the fact that their efforts to transform the various forms of enclosure into opportunities to participate more fully in the consumer/money dependent culture fail to address how this narrow interpretation of equality of opportunity further expands the industrial/profit oriented economy that contributes to global warming. That is, equality of opportunity too often is translated in terms of participating in the political system and the economy of consumerism—rather than balancing the need to overcome poverty and political marginalization with the need for personal development that comes from participating in the cultural commons of the arts, ethnic traditions of slow food, and mentoring relationships.

To summarize several key points. Enclosure may take many forms, but most important are the ways in which the largely non-monetized relationships and activities within communities are being monetized, thus turning traditions of community self-sufficiency into new forms of dependency. Enclosure also refers to how marginalized groups are being excluded from participating in the cultural commons—ranging from participating in the creative arts, being equally represented in the culture's narratives of people who have made outstanding contributions to the community, to being protected by the culture's traditions of civil liberties and moral

reciprocity. If the reader thinks that I am suggesting that we return to main pathway of human history before the rise of industrial/capitalistic culture she/he would be entirely mistaken. Such a mistake would be a reflection of the prejudices that need to be addressed if we are to live *less* consumer dependent lives—and thus, less environmentally destructive lives.

A careful mapping of what remains of the cultural commons in communities, whether in the West or in other parts of the world, will reveal that there are many intergenerationally connected activities and relationships that people engage in—indeed, that are a taken-for-granted part of everyday life. Thus, the argument is not that we should return to a pre-industrial and pre-monetized past; rather, it is that we need to recognize the existing community-centered alternatives to a hyper-consumer dependent lifestyle that is overshooting what Earth's natural systems (Mander and Goldsmith, 1996). What is being recommended is that educators make the revitalization of these alternatives part of their reform agenda. Most educators will have little to contribute in terms of developing the new generation of technologies that have a smaller carbon footprint, but they can contribute by recognizing how their silences, prejudices, and taken-for-granted cultural assumptions are undermining the community-centered sites of resistance to the cultural forces that are major contributors to global warming.

Mediating role of classroom teachers and university professors

Other educational reforms need to be undertaken. Perhaps the most important is for classroom teachers and university professors to learn how to become mediators who help students become explicitly aware of the differences in their experience when participating in activities of the cultural commons and when participating in the relationships and activities that are part of the consumer/ monetized culture (Bowers, 2007b). Few students are encouraged to think about these differences. This prevents them from developing the vocabulary necessary for articulating the differences in how commons and market-based experiences affect the discovery of their own personal interests and talents—as well as to recognize which has the larger environmental impact. Whether the nature of the relationship strengthens their sense of community or of being an anonymous customer, and whether the experience contributes to a feeling of dependence or empowerment, are questions that are also ignored as they move from cultural commons to consumer/market-based experiences without giving attention to the differences. The role of the mediator is not to give the students ready-made answers to these existential questions, but to encourage them to do what the anthropologist Clifford Geertz referred to as “thick description” (1973). Geertz explained the nature of thick description by using Gilbert Ryle's example of two physical acts: an involuntary wink of the eye, and the wink that is intentional. Thick description clarifies the background relationships that lead to the intentional wink of the eye. Thus, thick description involves considering the role that memory, previous relationships, social class issues, shared understandings, and all the other background information that needs to be taken into account in understanding the motives behind the message being sent—and how it is interpreted by the other person.

Feminists engaged in thick description when they made explicit how language perpetuated gender biases, the history of political, economic, and social class issues, their own personal

experiences, the assumptions encoded in the language about the attributes that separate women from men, and so on. Other social justice movements have relied upon thick description to justify their reform agendas. Thick description leads to the expanded vocabulary that is necessary for exercising communicative competence in determining what should be conserved and what needs to be changed. In the early grades this may take the form of encouraging students to describe the experiential differences between face to face and computer-mediated communication. In the later grades, the differences between being in a mentoring relationship and working on an assembly line, between growing food for the local market and buying food shipped from half way around the world, between participating in an ethnic ceremony and reading about such a ceremony, between engaging with others in one of the community's creative arts and being a consumer of other people's performance, all need to be discussed. The discussions, however, need to be based on the student's thick description of their embodied/culturally influenced experiences, and not on abstract (that is, textbook) representations of these various activities.

There are also issues specifically related to the differences between the students' culturally mediated place-based and embodied experience on the one hand, and the abstract language (context-free metaphors) on the other - that too often have no connection with everyday life, including such metaphors as "freedom", "technology", "equality", "progress", "rationality", "democracy", and so forth. Mediating involves helping students examine whether these abstract metaphors fully represent relationships, forms of dependency, meaning, different patterns of reciprocity, discovery of interests and talents, and networks of mutual support. For example, does the metaphor "tradition", given the Enlightenment derived analog that many non-ethnically grounded students take-for-granted, accurately represent the range of traditions that are re-enacted in everyday life? Does the metaphor "democracy" accurately account for the multiple ways in which everyday experiences are being electronically tracked by corporations and government agencies? The process of mediating, which helps students become explicitly aware of the multiple differences between their commons and industrial/consumer-based experiences, may at times lead to recognizing that certain aspects of the industrial/consumer culture represent genuine achievements, and that other aspects cannot be reversed and thus require a more skeptical attitude -one that does not assume the inevitability and progressive nature of new technologies and consumer goods.

Thick description enables students to acquire the communicative competence necessary for challenging and negotiating new understandings, for resisting forms of economic enclosure that increase dependency and poverty, for reforming aspects of the cultural commons that are sources of injustice, for learning how to engage with others in cultural commons activities that strengthen community and that have a smaller ecological footprint. If students are unable to articulate the differences as they move between the commons and the industrial/consumer based experiences, they will be yielding a central feature of the morally coherent cultural commons to the forces of enclosure. This claim is not based on abstract thinking. If we consider how groups ranging from local organic farmers, political activists resisting different forms of enclosure, to the local performing arts group, we find that participatory democracy is the primary approach to group decision making. But it's a form of democracy that is based on an awareness of community interdependencies, and an understanding of how the

well-being of the community leads to the development of the individual's talents and sense of mutual support. Participatory democracy is as inherent to most forms of the cultural commons as the loss of local decision making is to the different forms of enclosure.

A mediating approach to education also involves helping students acquire an historical understanding of the local cultural commons as well as the forces that are relentlessly transforming what remains of the commons into new markets. Given the increasing pace of everyday life, where the ugly word "multi-tasking" is used to convey a sense of normality, students have little time to consider the historical origins of the cultural forces contributing to undermining their community's traditions of self-sufficiency, as well as the cultural forces contributing to global warming. The multiple ways in which the idea of progress is reinforced further marginalizes most students' interest in learning to discriminate between the traditions that are ecologically sustainable and the traditions that are adding to our social and ecological problems. Thus, the role of the classroom teacher and university professor also includes engaging students in a discussion of the history of current forms of enclosure. The historical perspective may include a discussion of how literacy became privileged over orality, where the idea of free markets came from, and whether today's interpretation of free markets takes account of Adam Smith's understanding of how a face-to-face community would reduce the tendency to exploit other members of the community. Introducing an historical perspective will also clarify whose analog is encoded in the idea that there is such a thing as objective data and that technology is a culturally neutral tool, as well the origins of the idea that cultures follow a linear line of development from primitive to modern.

The historical perspective also needs to be part of the discussion of various ideologies, economic theories, philosophies, and so forth. The key questions that students should consider include: Did theorists such as Plato, John Locke, Karl Marx, John Dewey, Paulo Freire, etc., understand the nature and importance of the world's diversity of cultural commons? Or do their respective theories promote the development of a global culture that does not recognize the dangers of living beyond what the Earth's ecosystems can sustain? Another question that needs to be raised is why most of today's academics do not engage students in a discussion of how the misconceptions of these earlier thinkers have put us in the double bind of pursuing a form of development that is environmentally unsustainable.

The rapid changes in the climate and other ecosystems may prompt some academics to follow the path taken by other social reformers, which was to create an abstract theory for guiding social reforms that did not take account of local cultures. We have been down the many pathways promoted by these well-intentioned theorists and social reformers. In most instances, the results have been disastrous -especially for Third World cultures. We now need to follow the lead of the on-the-ground practitioners of sustainable living, such as environmentally-oriented architects, urban planners, organic farmers, people living lives of voluntary simplicity, community volunteers, and the people engaged in a wide range of cultural commons activities that still survive in communities around the world. That is, the pathway we need to take in order to reduce the human impact on the Earth's natural systems does not have to be invented and then imposed on the people. Rather, it already exists in as many ways as there are cultures.

Acknowledging the challenge of Einstein's insight

The challenge is how to awaken professors of education, as well as other academics, who continue to base their lives, teaching, and scholarly research on the assumption that taking care of the environment is the responsibility of scientists and environmental educators. The cultural assumptions that have led them to relegate the intergenerational knowledge that has a smaller ecological footprint to low status by leaving it out of the curriculum, and to reinforce the patterns of thinking and values required by the industrial/consumer oriented culture, are still likely to be taken-for-granted even as professors and classroom teachers read the scientific reports about the dire consequences that lie ahead. Unfortunately, like so many conceptual double binds that professors take-for-granted, too many are willing to leave the challenge to the technoscientists who control the discourse on how to reduce global warming.

It is a mistake to think that the university's complicity in promoting the forms of thinking that are exacerbating the ecological crises is a result of a combination of hubris and ignorance—though these elements cannot be dismissed entirely. Rather, the problem may be rooted in a lack of awareness of how to acquire at this stage in their careers the language that will enable them to participate in a discourse that highlights the tensions between the diversity of the world's cultural commons and the economic forces of globalization.

Energetic leadership on the part of university presidents, provosts, and deans does not always fit well among academics who promote the idea of equality and freedom for everyone to pursue their own interests. Nevertheless, this is exactly what is now needed. It was certainly missing in the leadership of the women and men who framed the agenda for the recent conference of the American Educational Research Association. The efforts of the British Environmental Association of Universities and Colleges, as well as the American counterpart, the Association for the Advancement of Sustainability in Higher Education, represent hopeful signs that there is a growing recognition that environmental issues must be introduced in courses across the disciplines. But the success of these organizations in bringing about the paradigm shift that the editors of this journal are calling for remains very much in doubt. Too often the support on the part of the highest levels of the university administration is limited to reducing the carbon footprint by introducing more energy efficient technologies, and to hiring environmental coordinators to handle recycling issues. And encouraging faculty to introduce readings and discussions of environmental issues too often is undermined by the failure of faculty to recognize how the other aspects of their courses are still based on the cultural assumptions constituted in the distant past before there was an awareness of environmental limits—and the promise of industrialization seemed a sure pathway out of poverty and stunted lives.

There is another problem that only energetic leadership on the part of university administrators can address: namely, the liberal ethos that most faculty take-for-granted means that it is still a matter of personal choice about whether they will take the time and make the effort to learn about the cultural roots of the ecological crises and how their teaching and scholarly writings may be part of the problem. Administrators need to exert leadership by declaring a moratorium that may last several weeks, and perhaps longer, that

would provide the opportunity for an in-depth examination of just how serious the ecological crises are, the consequences of ignoring them—including the impact they are already having on people's lives and on habitats and species. The moratorium should lead to a basic discussion of how to reconstitute the basic conceptual foundations of courses in ways that address both the misconceptions of the past that are exacerbating the crises and the ways in which students can live less consumer and individually centered lives.

The current approaches to environmentally-oriented conferences provides an opportunity of like-minded faculty to share ideas and to gain the feeling of empowerment from knowing that there are others who share their deep concerns. But the reality is that environmentally oriented faculty outside the sciences are still the minority in the various departments of the university, which means that students continue to encounter pre-ecologically informed ways of thinking in the majority of their courses. This is why the top levels of the university administration need to take a more pronounced leadership role that goes beyond supporting energy audits and retrofitting the physical plant with more carbon reducing technologies. Transforming the consciousness of administrators, of the people who organize environmental conferences, as well as the more traditional academic conferences, to recognize the nature of the double binds their thinking is still caught in will be a real test of the currently held myth that progress is inevitable—regardless of what we do.

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Additional sources: For an introduction to how language carries forward the misconceptions of earlier thinkers who were unaware of environmental limits, go to chapter 7 in the online book TOWARD A POST-INDUSTRIAL CONSCIOUSNESS. The connections between language and fostering ecological intelligence is explained in chapter 2 in the online book, EDUCATING FOR ECOLOGICAL INTELLIGENCE.

An introduction to the nature of the cultural commons and the forces of enclosure can be found in chapter 5 in the online book, TRANSITIONS. A more in-depth discussion may be found in chapter 3 of the online book, EDUCATING FOR ECOLOGICAL INTELLIGENCE. The website can be accessed by typing C. A. Bowers in the little box that comes up on Google, going to online books and articles, and then to the EcoJustice Press.