

Greening the University Curriculum

Any serious effort to "green" the university curriculum must take account of Ivan Illich's observation about the current role of the university. The university, as he puts it, "is simultaneously the repository of society's myth, the institutionalization of the myth's contradictions, and the locus of the ritual which reproduces and veils the disparities between myth and reality" (1971, p. 37). The myth perpetuated by the modern university, as well by the media and other institutions, equates development with "open-ended consumption--eternal progress." This myth creates a dangerous double bind which can be understood more clearly when it is recognized that the globalization of this open-ended consumption, along with the technological infrastructure and supporting modern mind-set, are exceeding the self-renewal capacities of natural systems.

The myth, and thus the nature of the double bind, needs to be elaborated if reform efforts are going to avoid contributing to the problem. Instead of using myth or double bind as the basis of analysis, it would be useful to substitute the phrase "cultural schemata." A cultural schemata or way of knowing is partly based on myths and it reproduces the double binds in ways that are not usually recognized. As the following analysis will show, it provides an effective way of explaining how universities perpetuate the patterns of thinking, values, and technologies that are proving to be ecologically unsustainable. If designing energy efficient campuses, introducing environmental issues into courses, and conducting more scientific studies of natural systems do not address the ecologically problematic nature of this cultural schemata (episteme) the double bind will continue to exist. The result will be to limit the greening of the university, with the cultural schemata reinforced in the different academic disciplines (including many environmentally oriented courses) continuing to be the basis of most university graduates' behavior and way of thinking.

As I explain in [Educating for an Ecologically Sustainable Culture](#) (1995), and in [The Culture of Denial: Why the Environmental Movement Needs a Strategy for Reforming Universities and Public Schools](#) (1997), the double bind results from the failure to recognize that current patterns of thinking reinforced in universities co-evolved with the Industrial Revolution--which is now entering its digital phase of development and globalization. This continuity has gone unrecognized for a number of reasons that can be traced to how the myth (cultural schemata) that Illich identified frames awareness as well as influences what will be ignored. Basing everyday life on new ideas and technologies that appear on the surface to be an advance over what previously existed

contributes to overlooking the continuities that connect the present with the past. The modern way of understanding tradition that is reinforced in both public schools and universities also contributes to the failure to recognize that key aspects of the modern schemata were essential to the formation of the Industrial Revolution, and to giving it moral legitimacy. Before addressing the different elements of this cultural schemata, it should be emphasized that the failure to recognize that we have not moved into the new era of an Information Age (which is assumed to be a postmodern stage of development) can be attributed to associating the Industrial Revolution with massive machinery in grimy factories, and not with the universalizing of market relationships. A key feature of the Industrial Revolution that continues today is the turning of knowledge, relationships, skills, leisure, and Nature into commodities governed by the values implicit in the market system of supply and demand. How computers extend the commodification process that creates dependencies and the need to succeed in a money based economy is described in my forthcoming book, [Let them Eat Data: How Computers Affect Education, Cultural Diversity and the Prospects of Ecological Sustainability.](#)

Among the key elements of the cultural schemata reinforced by universities is thinking of the individual as the basic social unit--which leads to viewing intelligence as an attribute of the autonomous individual. This deep cultural way of thinking about the nature of the individual is reinforced in the way students and faculty are held accountable, as well as in the way knowledge (and now, data) are viewed as the outcome of a rational process that has not been influenced by a cultural way of knowing. Other elements of this cultural schemata include the emphasis on new ideas, technologies, creative expression: indeed, whatever leads to change and thus to further "progress." This taken-for-granted attitude toward innovation, and what often amounts to experimentation with the symbolic foundations of our own culture as well as that of others, is grounded on the culturally and historically specific assumption that linear progress means we are moving away from the constraints of traditions. This view leads to thinking about traditions as either irrelevant or as an impediment to further progress. Anthropocentrism (human-centeredness) is also reinforced in universities. It underlies how our technologically mediated relationships are, from an ecological point of view, misunderstood. The increasingly dominant role that science plays in establishing what constitutes knowledge of life processes and authoritative metanarratives, as well as its contribution to developing new technologies, is also part of this cultural schemata. In addition, while the taken-for granted attitude toward commoditized relationships, knowledge, activities is given explicit legitimation in only certain university departments,

it is daily reinforced through the use of textbooks, computers, tuition fees, and the general ethos that equates a university education with increased economic success.

Other aspects of this cultural schemata or mind-set include the reinforcement of an ideology that serves both as a conceptual and moral framework for guiding the process of change, the further emancipation and empowerment of the individual, and greater control over the forces of Nature. While the different interpretations of this ideology are based on the assumptions identified above, their minor differences are revealed in the labels that best describe them: technocratic and emancipatory liberalism. Neo-romantic liberalism has traditionally been restricted to the early grades of public schools but is now becoming, with the emphasis that represents thought as based on data, more prominent in how computer mediated learning is being justified at the university level.

An overview is never adequately nuanced. Nevertheless, it provides a basis for recognizing the connections between the conceptual and moral foundations of the high-status forms of knowledge perpetuated by universities and the earlier phase of the Industrial Revolution. To make the point more directly, the form of development taken by the Industrial Revolution was dependent upon the philosophers, social theorists and scientists who established these assumptions as universal characteristics of the human condition, and represented differences between non-Western cultures as differences in a linear process of cultural evolution--with the assumptions about individualism, progress, anthropocentrism, etc., representing the most advanced stage of development. While today's liberals view themselves as critics of the social injustices associated with the Industrial Revolution, their deep taken-for-granted assumptions are part of the same family of ideas. Their criticisms are like the criticisms that occur between family members. And like the promoters of the Industrial Revolution, and today's digital phase of development, they rejected as backward and oppressive the different families of ideas and values that are the basis of traditional and still viable ecologically centered cultures.

The original process of transforming self-reliant cultural groups into markets for the products of Western technology and science required that cultural traditions, including patterns of moral reciprocity and intergenerational responsibility, be replaced with the liberal way of thinking that equated freedom with individual self-determination and economic success--both essential to the expansion of the commodification process that is now being furthered through the use of computers. Similarly, the mythopoetic narratives that provided the moral framework governing relationships within communities, as well as with the natural world, had to be undermined--which was done by representing them as pre-modern, superstitious, and irrational. Representing their

narratives and folk knowledge as the pre-scientific beliefs of non-literate and thus culturally backward people also had a powerful delegitimizing effect. Conserving traditions of the community and family were impediments to the sale of commodities and services--and the new forms of dependencies that accompanied them. Success in expanding markets, lowering production costs, and improving profit margins required that the traditional ways of thinking about identity and responsibility be replaced by a unique Western cultural construction: the "autonomous individual" whose needs could be met by the dynamics of the market. The aspects of cultural life overturned by the Industrial Revolution (which included knowledge and values based on the recognition of the authority of tradition and face-to face communication, as well as the skills that contributed to the self-sufficiency of communities within the limits and possibilities of the local ecosystem) are still not represented in the university curriculum--with the exception of what might be presented in a class on folklore and in marginalized environmental classes that touch on the practices of indigenous cultures.

The answers to the following questions help put into perspective Illich's criticism of the university's complicity in privileging patterns of thinking that prepare individuals to succeed in a consumer, technologically oriented culture--which is based on the myth that progress is independent of what happens to the environment. How many university graduates will be given the opportunity to learn about the characteristics of ecologically sustainable cultures and the patterns of voluntary simplicity? Where will they learn that technologies, including computers, are not culturally neutral--and the differences between technologies based on the family of ideas that underlie the current stage of the Industrial Revolution and the principles of ecological design? How many university graduates can recognize the many ways their lives have become commodified and thus brought into the cycle of production and waste that is both depleting and choking the environment with toxic waste? Are they able to recognize the patterns of community life that have not yet been commodified, and thus contribute to their renewal--or add to them?

While environmentally oriented professors and students are becoming more visible within the university, they are still marginal to the main mission of the university--which is to promote the advancement and dissemination of the high-status forms of knowledge that contribute to economic growth, technological dominance on the world scene, and the primacy of the expert. In many instances, environmental faculty base their research and courses on the same deep cultural patterns of thinking that perpetuates the double bind where progress in globalizing the high-status forms of knowledge necessary to the commodification process that continues to degrade the

environment. Given the increasing connections between educational and market values, as well as the growing reliance of universities on computers (which further the integration of education and commodification) the question of what constitutes an effective strategy for "greening" the faculty and content of the university curriculum becomes increasingly urgent.

As there are significant differences in levels of ecological awareness among university faculty, it is necessary to think in terms of different strategies. My contact with faculty at universities across the country, as well as my broad reading of scholarly books and journal articles, leads to the personal conclusion that the majority do not take the ecological crisis seriously enough to examine whether their courses and writings contribute to the solution or to perpetuating the problem. Aside from the possibility that preeminent scholars in each discipline may be able to redirect the focus of inquiry to include environmental considerations (how do we get them to take seriously the environmental crisis?), I have no idea of what would be an effective way of reaching this group. There is a smaller segment of the faculty that expresses personal concern about changes in ecosystems being reported in the media. How to motivate them to translate their personal concern into a critical examination of the deep cultural assumptions that underlie their field of expertise, and to introduce alternative ways of thinking that are more supportive of sustainable cultural patterns, is also a daunting challenge. In [The Culture of Denial](#), I suggest that a segment of the faculty might respond if university administrators called a moratorium on the "publish or perish" ethos that limits the possibility of faculty engaging in a sustained discussion of how to address the problem of overshooting the sustaining capacity of the environment--but then, the question becomes that of how to awaken university presidents and academic deans to the seriousness and complexity of the problem.

The strategy for assisting faculty who are concerned and willing to begin the difficult process of thinking against the grain of current modern (and postmodern) orthodoxies is somewhat clearer. However, the complexity of both cultural and natural systems, as well as how they interact with each other, makes any one approach to conceptual reform exceedingly problematic. For example, if the approach is that of helping faculty understand how the metaphorical nature of language reproduces past forms of cultural intelligence, such as thinking of change as linear and progressive in nature, they may not have re-conceptualized other aspects of the cultural schemata that is taken-for-granted in their field of inquiry. If they do not understand the complex nature of tradition, the differences between commodified relationships and community activities based on different norms of moral reciprocity, and the cultural mediating characteristics

of technology--to cite just a few of the related areas of reconceptualization that are needed, understanding the problematic nature of thinking of change, creativity, and experimentation as inherently progressive might not be recognized as significant. While the double binds of our conceptual patterns too often go unrecognized, there seems to be a coherence and mutual support between different aspects of our way of thinking. For example, thinking of intelligence as an attribute of the individual and the objective nature of data are dependent upon thinking of language as a conduit, and the rational process as free of cultural influence. To make this point in another way, understanding that language reproduces the metaphorical constructions that prevailed in the past leads, if one is going to think in a coherent and consistent way, to recognizing the influence of culture on how we think, how traditions are continually being re-enacted, and how language reproduces the moral norms of the cultural group.

The approach to helping faculty recognize the double binds as well as the patterns of thinking that are more supportive of living within the limits of ecosystems subject to sudden and unpredictable changes should always establish that the reconceptualizing of one part of the dominant cultural schemata cannot be treated as separate from the reconceptualization of other aspects. Gregory Bateson's observation about the "patterns that connect" being the basic relationship also holds for understanding how we make sense of culturally mediated experience--particularly how we think about it. The rush to judgment, which often happens when a new way of thinking is introduced that is not immediately reconcilable with other taken-for-granted ways of thinking, needs to be suspended. This will be a continual challenge, as I have found out from talking with faculty from different disciplines. The mention of the metaphorical nature of language led many in the audiences to interpret the explanation in a way that represented the primacy of the individual's conscious choice of metaphors rather than recognizing that the largely hidden patterns of thinking are laid out for us through the language we use--unless, of course, we are focusing attention directly on the connections between the analogs framed by root metaphors and how we are thinking. The mention of the need to understand the complexity of tradition as a basis for critiquing what is ecologically problematic about computers and a commodified lifestyle led many in the audiences to respond to what they perceived as reactionary and romantic thinking--rather than recognizing the anti-tradition nature of modern traditions and that the non-commodified aspects of community life are examples of fundamentally different traditions.

It is impossible to engage simultaneously in the re-conceptualization of the aspects of culture most directly related to making the transition to more ecologically

sustainable cultural patterns. Thus, the problem becomes that of identifying the area of re-conceptualization that is most fundamental to the high-status ways of thinking that are shared across the disciplines and that carry forward the deep assumptions upon which the Industrial Revolution was based. As all courses, research, and scholarly writing are dependent upon the use of language, it becomes the obvious starting point.

Furthermore, understanding the epistemic characteristics of language put out of focus by the conduit view of language that hides the cultural perspective that is an inherent part of every discipline, from philosophy to the sciences, provides the basis for recognizing how the thought patterns of the past are reproduced in the metaphorical language used to "advance" knowledge in the different disciplines. This more general approach to explicating the historically and culturally specific nature of root metaphors, how root metaphors frame the process of analogic thinking, and how the prevailing analogies become encoded in the iconic or image metaphors that are a pervasive part of the taken-for-granted conceptualizations of a discipline, overcomes the problem of addressing ecologically problematic conceptions in a specific discipline. Focusing on the metaphorical constructions that are the basis of a specific discipline, such as psychology or economics, would likely result in faculty from other disciplines losing interest. The analysis of how language reproduces earlier forms of cultural intelligence, particularly patterns of thinking anchored in the same deep assumptions that were used to give conceptual and moral legitimacy to the Industrial Revolution, should utilize examples from a variety of disciplines. This is absolutely essential to holding the interest of faculty who often do not see a reason for thinking beyond the boundaries of their own discipline.

It is also essential that the discussion be framed in ways that highlight the historical continuities in metaphorical thinking, such as contemporary thinkers (e.g., Marvin Minsky and Francis Crick) basing their thinking on the same root metaphor of mechanism that was the basis of thinking of Thomas Hobbes and Johannes Kepler. Any discussion of metaphorical thinking also needs to include examples of the root metaphors of ecologically sustainable cultures, including how the root metaphors of different cultural groups influence their approach to dwellings, technologies, ceremonies, and how they understand the individual's relationship to community and Nature. The introduction of examples of ecologically centered cultures, as I have found, is usually challenged with the arguments that we "cannot go back," "traditional cultures also destroyed their environments," and "it's romantic nonsense" to think that a culture based on scientific thinking and sophisticated technology can learn from primitive, pre-literate cultures." This type of response provides an opportunity to make explicit a root metaphor

that is widely held in academic circles: namely, that cultures "evolve" along a linear pathway--with preliterate cultures representing an earlier stage of development. It is this view of evolutionary cultural development that was used to justify the spread of the earlier factory system and consumer lifestyle that is now being updated by computers. A further cautionary warning needs to be given to anyone who engages faculty in a discussion of the ecological implications of the metaphorical constructions being passed on from faculty to students. Especially problematic is the convergence of thinking within several disciplines that reduces "thinking" to the functions of the brain, which foreground chemical reactions, electrical fields, and genetic codes while eliminating any consideration of the cultural differences in ways of knowing and of how the languages of a cultural group influence thought, relationships, and moral norms. This increasingly dominant approach to understanding the brain/thought connection is itself an example of the current process of re-metaphorizing the language in a way that reflects the influence of root metaphors that can be traced to the origins of modern consciousness. A second cautionary warning is also in order: as the conduit view of language is so deeply entrenched in academic disciplines, an hour long session on the metaphorical nature of language, and how particular metaphorical constructions contribute to the ecological crisis, will not have a lasting effect--as I have found on numerous occasions. In order to lay out the different dimensions of metaphorical thinking (e.g. the process itself, its historical nature, cross cultural examples, connections between current metaphorical constructions and the ecological crisis, changes in root metaphors that avoid the problem of borrowing from other cultures, and so forth) a two or three day retreat should be considered the minimum.

After faculty become comfortable with thinking of language as carrying forward earlier patterns of understanding, two other aspects of culture that few faculty will have encountered in a systematic way as part of their own education should be considered. These include a discussion of the cultural patterns that have a less adverse effect on the environment, and the cultural mediating characteristics of technology--including how these mediating characteristics relate to more ecologically sustainable cultural patterns. The discussion of sustainable cultural patterns should cover, as a minimum, the following: (1) How the high-status forms of knowledge reinforced through a university education contribute to the commodification of knowledge, relationships, skills, and activities that previously involved face-to-face relationships governed by non-economically based customs of moral reciprocity. This should include examples of the many expressions of commodification--in healing, mentoring, nurturing, education, entertainment, leisure, and so forth. (2) The ecological impact of globalizing market

values and dependence on mass produced consumer items and expert systems. (3) The characteristics of non-commoditized community activities and relationships, including how different cultural groups have maintained traditions that have limited their dependence on outside experts and avoided being overwhelmed by the modern values of consumerism. (4) The lifestyle, including the ecological impact, of living in accordance with the principles of voluntary simplicity.

There are many patterns that are common to ecologically centered cultures. One of the more important is the limiting of market oriented relationships. This may be accounted for, in part, because the intergenerational sharing of knowledge and skills that enhance the capacities of individual members of the group is highly valued. Of course, this depends upon a different view of intergenerational learning than is found in modern societies--but its ecological implications are immense. For example, it involves becoming a performer rather than only a consumer of music and the other arts, developing personal skills and traits of character acquired in a mentoring relationship rather than buying a product or service intended for a mass impersonal market, and taking responsibility for renewing the skill, traits of character, and moral insights in ways that enrich the capacities of the next generation. With regard to this last point, the question can be asked: What form of intergenerational responsibility does the individual centered on consumerism experience beyond being able explain which products pose less danger to individual health and the environment? If the critical distinction between commodified and non-commodified patterns of individual and community life are not understood, the analysis of how language reproduces pre-ecological ways of thinking will leave students with a more critical understanding-- but no sense of the cultural patterns that need to be renewed or established in their communities. They may not even have an understanding of the characteristics of a community that nurtures the varied capacities of its members.

The discussion of the cultural mediating characteristics of technology, particularly computers, is equally complex and equally ignored in mainstream thinking within academic disciplines. The result is that students graduate with a knowledge of how to utilize social techniques as a means of interaction and problem solving, while those who study in the more high-status disciplines will possess the basic knowledge necessary for entering a career that leads to advancing the design and application of new technologies. But their understanding of the cultural transforming characteristics of technology (both social and mechanical) will be limited to viewing it as both a neutral tool and as an expression of progress. That is, they will lack an understanding of how various technologies privilege certain cultural groups over others. Nor will they be able

to recognize the cultural double binds that accompany the use of most modern technologies--particularly computers. When the myth of progress frames how technologies are interpreted, few citizens feel the need to participate in decisions about technological innovation. The result is that politicians too often end up making decisions about the allocation of public funds for the support of technologies that have already been integrated into the infrastructure in a way that creates public dependency upon them. The mounting evidence of how different forms of technology contribute to disrupting the renewal processes of natural systems is causing an increasing number of citizens to adopt a more critical attitude toward technology, but they must often set aside the techno-optimism way of thinking learned in universities. The examples of nuclear power plants and the use of DDT come quickly to mind as instances where the public became involved after the technology had already been integrated into systems that the public had become dependent upon.

Computers represent an example of a technology that is leading to even more far reaching cultural change. Their contribution to globalizing a mind-set that is ecologically problematic, as well as to major changes in educational priorities, are two of many reasons that there should be a vigorous public debate on the cultural and ecological gains and losses connected with this technology. While computers are fast becoming a dominant characteristic of cultural life, few people possess the background knowledge necessary to ask the questions that would help clarify both the gains and losses. As the public is continually reminded of the gains, little attention is given to the losses. This lack of a balanced perspective represents a major weakness of a democratic society--which can be traced to the failure of universities and public schools to provide the historical, cross cultural, and ecological background knowledge necessary for making appropriate decisions about technology--especially the use of computers.

Educating faculty to understand the impact of different forms of technology on the viability of communities and ecosystems is likely to run into the same forms of resistance that will be encountered in examining how the metaphorical nature of language continues to reproduce pre-ecological ways of thinking. It is important that the misconceptions, including the myth-driven expectation that equates technological innovation with progress, not be allowed to divert the discussion. The following characteristics of technology should be the starting point for raising awareness of the dangers of allowing the techno-optimists and innovators to be the main source of influence on how the public understands what has become the dominant cultural transforming feature of modern life: (1) the differences between modern, Western technology and indigenous technologies; (2) the root metaphors that frame how we think

about technology--including how technology has become an important analog (indeed, root metaphor) that influences how we think in non-technological areas of life; (3) the relationship between different forms of technology and the spread of commodification and dependency on outside experts; and (4) the differences between approaches to technology in the industrial era and approaches based on the principles of ecological design (this discussion should also address the continuities between the digital stage we are now entering and the earlier stages of industrial development).

Aside from providing a basis for introducing major changes in the content of the curriculum, this general background knowledge will also lead to a more in-depth understanding of the cultural mediating characteristics of computers. When the cultural amplification and reduction characteristics of computers are clarified, the connections between the cultural patterns amplified by computers and the ecological crisis will be more easily recognized. The forms of knowledge, values, and subjectivity amplified by computers (e.g. context-free thinking, commodification, autonomous individualism, anthropocentrism, instrumental values) are an integral part of the process of globalizing the consumer, technologically oriented form of culture that is accelerating the rate of environmental devastation. On the other hand, a balanced consideration of the characteristics of viable local communities that rely more on nurturing local skills, meeting local economic needs, intergenerational responsibility, and environmental stewardship will quickly reveal that the cultural patterns and knowledge essential for participating in this form of interdependent community cannot be communicated through a computer. To make this point in a somewhat different way: while computers are essential to the scientific study of ecosystems, they also amplify the cultural patterns that contribute to the process of globalization while simultaneously marginalizing (undermining) the cultural patterns that are the basis of relatively self-sufficient communities not centered on consumerism and exploiting the environment.

Again, it needs to be kept in mind that most faculty, in viewing the individual as the basic social unit, language as a conduit, and technology as the latest expression of progress, will not always be willing to re-think the deep conceptual basis of how they understand technology. The use of computers to communicate with colleagues in other parts of the world, as well as in accessing information and modeling solutions to problems, will lead many faculty to resist spending time discussing what they already perceive as a powerful and increasingly indispensable tool. Framing the discussion in terms of a double bind, where constructive uses are acknowledged while the destructive consequences are seldom recognized or discussed, will be essential to greening this part of the university curriculum.

References

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Also see: Interview of Chet Bowers by Casey Walker. Wild Duck Review. Vol. IV. No. 1 (Winter, 1998).