

Beyond the Bowers-McLaren Debate: The Importance of Studying the Rest of Nature in Forming Alternative Curricula

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The recent debate between Peter McLaren and C.A. Bowers in this journal is instructive about how natural sciences are typically addressed in critical pedagogy, when they are at all. For Bowers, Western culture and its associated education systems—including Freirean and Marxian approaches—present an environmentally destructive tendency that must be tackled through cultural change, drawing from “ecologically sustainable cultures.” McLaren maintains that despite Bowers’ criticism, Bowers’ own work supports that of Marx and Freire, both of which specifically facilitate a culturally contextualized and ecologically based critique of capitalism. But for this sort of critique to be pedagogically effective, one must resist attributing the causes of environmental degradation solely to culture, since nonhuman forces are also involved in environmental degradation (and, in any case, allow for the very possibility of human existence). This means that alternative curricula must incorporate the natural sciences, so that students are presented with material that provides a fuller understanding of the impacts of capitalism and environmental degradation on the world, whether in their own community or globally.

I tend to agree with Bowers’ assessment that Freire ethnocentrically privileges some aspects of culture, such as written forms of literacy. There is a risk of excluding the perspectives of peoples that do not use writing as a primary means of communication and whose ecological understandings are embedded in language and associated with sustainable livelihoods. This is evident, for instance, in one of the “situations,” (image-centered discussion points) used for teaching purposes, where the “participants ... perceive ... that to be illiterate is to belong to an unlettered culture and to fail to dominate the techniques of reading and writing.” However, Freire’s basic framework, being dialogical and dialectical, already encourages such cultural critique and theoretical amendment and, as McLaren rightly points out, thereby facilitates cross-cultural understandings.

Bowers’ mischaracterization of Freire (and Marxism) is not accidental; it results from fundamental problems within his propositions and arguments, which rest on cultural reductionism and notions of culture and environment as static or monolithic entities. McLaren, however, offers a no less problematic social reductionism in his pedagogical alternative. What is missing in both approaches—and critical/radical pedagogy generally—is an understanding of nonhuman beings and forces as active shapers of reality, which are in dialectical relationship with humans. For example, as nonhuman beings and forces affect people, people change and, in turn, influence nonhuman beings and forces, which are modified in the process. An ecologically based and egalitarianism-oriented pedagogy must therefore incorporate the study of nonhuman worlds and critically and actively engage with the natural sciences.

Bowers’ (and to some extent McLaren’s) approach contains major internal flaws, because he reduces the rest of nature to what happens within culture (cultural reductionism) and treats both culture and environment as unchanging (static) and opposite (mutually exclusionary) processes, thus setting up a false culture-nature dichotomy. These problems are reflected in his internally contradictory arguments against Freire’s methods, among other putatively Eurocentric pedagogical models.

Bowers' contention that Freire denies legitimacy to traditional knowledge is based on a decontextualized and peremptory reading. It is true that Freire states that "to teach is not *to transfer knowledge* but to create the possibilities for the production or construction of knowledge" [italics in original]. However, this statement hardly denies the importance of tradition, unless one surmises that younger recipients of traditional knowledge are passive receptacles and/or all generations live through the same social and physical environmental conditions. Such an assumption would not only contradict cultures based on a belief in the circularity of time, which Bowers poses as alternative, but also supposedly Eurocentric beliefs in the irrevocability of change, which Bowers opposes.

Bowers' analysis contains other contradictions. On the one hand, he says "we can focus on the shared motifs and patterns [across ecologically sustainable cultures] rather than the specific form of elaboration that gives traditional cultures their specific identities." But that contrasts with his sensitivity to non-interventionist, experience-derived knowledge systems, such as the Chipewyan, which would find such abstraction untenable. According to Bowers, learning occurs through concrete action. So in the case of the Chipewyans, for example, discussions on, say, the mechanical workings of a car, would be nonsensical if discussed without direct material manipulation or practice. If that is really the case, the abstraction required for finding shared cross-cultural patterns would not be possible in Chipewyan culture, since there is no possibility of direct manipulation. Clearly, when proposing cultural alternatives, Bowers privileges cross-cultural abstraction over Chipewyan concreteness, and this contradicts his treatment of Native American cultures as more ecologically sensible systems.

Another inconsistency is Bowers' call for an ecocentric approach while giving primacy to the cultural. He even reinforces a culture-nature dichotomy, for example, when assuming that "urban populations ... have become largely insulated from the natural world by modern technology." This statement both denies the existence of urban ecosystems and presumes that urban dwellers are similarly challenged in grasping the "natural world." Finally, though Bowers castigates Freire for progressivism, privileging critical self-reflection, and anthropocentrism, his own approach is not very different, since it is based on a notion of progress (i.e., judging progress in terms of proximity to ecologically sustainable "root metaphors"), critical self-reflection through language, and an anthropocentrically (culturally) based critique of Enlightenment ideology. As Bowers states, "The only elements not reinforcing this Western mind set [in Freire's approach] are Freire's concern with exploitive human relationships and with basing communication on dialogue." Yet Freire's concern about exploitation and the dialectical method he devised to help people see it are exactly what can help us surmount ethnocentrism and ecologically problematic cultural constructs, including in Freire's own work. Dialogue establishes possibilities for inter-cultural understanding, and struggling against exploitation necessarily involves a rejection of ethnocentrism.

Bowers' call for teacher education centered on a critical analysis of culture, metaphor transmission, and socialization processes is laudable and, in my view, complements and improves upon both Freire's approach and Marxian perspectives on education. But some of Bowers' ideas are not as constructive, because they tend towards cultural determinism and represent "Enlightenment" European cultures as monolithic and unchanging. Interactions among people are not solely determined by their cultural frameworks, or "root metaphors," which Bowers defines as "... the basic frames of reference or paradigms for making sense of our world ... the starting point of all theory building ... below the level of conscious awareness." If that were the case, it would be impossible to modify culture or explain why it changes over time. Furthermore, the notion that people are not conscious of root metaphors makes it difficult to grasp how anyone could even be

able to expose root metaphors, unless there is a dialectical (mutually changing) process between cultural framework and consciousness, which Bowers does not investigate. In fact, he provides no explanation as to how root metaphors form.

Moreover, change in a cultural framework is not related to changes in how nonhuman phenomena are explained through education, such as teaching about the formation and movement of high and low pressure cells in the troposphere. This would require an alternative natural science that is not forthcoming from Bowers (or McLaren). Nor does change in a cultural framework adequately consider the complexity of changes in actual people-environment interactions. It is just not enough to change people's mindset in order to bring about ecologically sustainable practices, since thought has to be translated into action. And even when that is achieved, there is no guarantee of sustainability, because what is sustainable practice under one set of environmental conditions is not necessarily so under another. The characteristics and activities of nonhuman forces may be affected by human practices, but they are also independent. It is also true that human activities can be independent of, yet shaped by, nonhuman forces. For instance, because different tree species regenerate at different rates and conditions, minimal or even selective logging in, say, slow-growing sequoias in sequoia forests will be much more damaging than logging of fast-growing poplars in woods dominated by that tree species.

As Karl Marx theorized, the "superstructure" (e.g., culture) is part of a dialectical relation between human and nonhuman processes, with no single or ultimately determinant process. Unlike Bowers' treatment of cultures as homogeneous units, it should be recognized that any culture contains inherent tensions and contradictions. This is because people experience differing realities, both cultural and biophysical, and sometimes there is a dissonance between dominant cultural frameworks and quotidian material experience. This dissonance is not just due to cultural practices like learning a different language. It is also the result of nonhuman forces behaving in ways that are unpredictable, like the protracted low pressure system that magnified the toxicity of air pollution in the Great London Smog December 5-9, 1952, causing thousands of deaths. Culture should be understood as the product of dialectical relations within and between societies and between the social and ecosystemic. This quickly dispels the assumption, as expressed by Bowers, that there is a single Eurocentric and anthropocentric Enlightenment culture that can only be changed through infusions of frameworks drawn from external sources.

With a dialectical perspective, it is possible to develop a more constructive approach to mainstream science that would make it easier to detect internally contradictory and enabling features that could then be used to subvert formal education systems. The "Western" culture Bowers maligns not only provides the empirical basis for ecological awareness (e.g., through natural sciences), out of which cultural change is also made possible, but also constitutes cultural currents from which Bowers also draws to promote cultural change. These would be Enlightenment derived sources, such as Friedrich Nietzsche and Ernst Cassirer, who held still to a Eurocentric distinction between "civilized" and "primitive," and more recently, Aldo Leopold and Wes Jackson, who, in their ecocentric views, obfuscate the genocides, colonization, and environmental degradation that made the landscapes towards which they display ethical concern. More importantly, Bowers ignores alternative living European cultures, such as those of organic growers, anarchist traditions (especially inspired by the work of Elisée Reclus) that formed the basis of bioregionalism, and the general continuities in the variety of philosophical approaches to the rest of nature within Western European Enlightenment.

Furthermore, as many have shown, dominant Enlightenment culture has not evolved in a cocoon; it has originated and has been altered and reshaped by many other cultures, alongside shifts in culture-environment relations. And the same applies, for example, to Native American cultures, which also change over time (partly due to articulation with European and other cultures) and are known to have contributed to enough environmental degradation to undermine human life, though not to the same degree or scale as capitalism. So internally heterogeneous Native American cultures should not be expected to be the sole sources of ecologically sustainable practices, nor contrasted to a monolithic Enlightenment culture that does not exist. In other words, Bowers is presenting us with a false dichotomy, which emerges from a deterministic and monolithic view of culture that reduces human-environment interactions to merely cultural processes.

This kind of determinism and reductionism is also prevalent in science education. For example, one study claims that science is ineluctably Eurocentric by describing two examples. In one, a Southern African cultural understanding of differential special abilities among experimenters is contrasted with European scientific constructs of experimental reproducibility. In another, scientific interest in the incidence of mosquito-borne malaria diffusion presumably demonstrates scientific disinterest in other questions more attuned to a Southern African culture, such as the reason for the mosquito biting a specific person in particular. The author here conflates culturally specific perceptions and priorities in the relationship between people and environment with the experiencing of and processes in the rest of nature. It is also of dubious validity to compare constructs that are general in one culture (a non-specified Southern African culture) with those of a subculture (positivist scientists) in another culture.

To return to the exchange between McLaren and Bowers, the trouble with the debate is that neither scholar — as is true of critical pedagogy in general — critically engages with the question of how to study and teach about nonhuman processes, nor with one of the foremost sources of knowledge on which the very awareness of an environmental crisis is based: the natural sciences. McLaren's otherwise excellent grasp of schooling systems in North America does not provide a basis to teach about physical environments without reducing them to what is human-induced and/or enters social reality. He is far from alone in this, since it is a recurring problem in all radical approaches. As Kevin Cox explains with respect to geography,

The fact of agency underlines an essential difference between the objects of study of human and physical geographers. Agency depends on the attribution of meaning. The objects of study in physical geography are intrinsically meaningless; they are impervious to the meanings assigned to them. The concepts we use in talking about rivers, material transport, deposition, water droplets, are no more than labels. Whatever we think of them, however we conceptualize them, they will continue to act according to their own natures. The objects of study in human geography ... are intrinsically *meaningful*. In understanding them we need to know what they mean to the people who use them, whose actions are conditioned by them ... But in the case of the physical world, that clearly does not apply. In that particular instance, there are no understandings to be understood. Rivers lack intentionality. It has implications for what we can legitimately expect of method in human as opposed to physical geography. It also affects how we understand process.

Contrary to Bowers' thinking, cultural processes (including root metaphors) are not the only ways through which people gain an understanding of the rest of nature, as nonhumans also contribute to the making of reality. This means that cultural change and learning from other cultures, though necessary, are insufficient to bring about ecologically sensible environmental practices, which also depends on the trajectory of and interactions among nonhuman processes at multiple scales.

Cultural change is anyway embedded in people's bodily experiences of constantly changing physical environments, and their understanding has to involve learning about how these physical environments operate in the absence of human-induced transformations. The scope and applicability of critical pedagogy perspectives will remain limited as long as they ignore actual nonhuman dynamics and the natural science approaches that enable their understanding.

In contrast, sensitivity to processes in the rest of nature and their dialectical relations with social processes has been amply demonstrated in the abundant works of radical academics, especially (eco)feminist and Marxist, in and about the natural sciences. But as much as these contributions help to redefine natural science and furnish valuable supplementary course readings, they do not offer much practical improvement compared to critical pedagogy, because they fail to extend beyond theoretical discussions and critiques of existing natural sciences. More problematically, these scholarly works often have to be translated into more widely accessible language, and ultimately they have to be transformed into teaching materials. Ideas or examples for building an alternative natural science and related pedagogical practice remain scarce.

It is true that natural science course curricula have been developed with explicitly socialist content and aims in both plutocracies (e.g., Western Europe and the United States) and state-socialist countries. I have not yet had the opportunity to analyze any, save for university materials from state-socialist Hungary. As far as I can gather from those examples, such curricula have not influenced teaching elsewhere. And if university soil science textbooks in state-socialist Hungary are any guide, it would appear that no alternative to capitalist ideology was formulated for the natural sciences. Perhaps research into early Soviet pedagogical approaches may offer viable curricula, but there appear to be no studies concerned with forging a socialist natural science teaching curriculum based on experiences in state-socialist contexts.

There have been many efforts in the United States to provide radical schooling. But because they have been considered of secondary political importance, these efforts have had brief life-spans. They also failed to offer natural science courses beyond introductory level, if at all. Worse, the curricular content of such courses did not differ markedly from that of the mainstream. Moreover, most alternative schooling was organized for elementary education, and concerted forays into college-level teaching were extremely rare.

McLaren and Bowers are hardly exceptional in their narrow understandings of the rest of nature and the environmental crisis. Historical experiences of alternative schooling initiatives show such a problem to be a general tendency among radical or critical pedagogues. But it is not only the cultural reductionism in critical pedagogy that thwarts the development of a critical natural science. It is most socialists' lack of attention to natural science pedagogy (and to pedagogy generally) at higher education levels that further weakens the potential for an anti-capitalist natural science. The combined result is a persistent dearth of teaching materials and inadequate transfer of alternative and formal institutional experiences across different places and generations. Unless concerted action is taken by all concerned to reverse this trend, education work will not contribute much towards making ecologically sustainable egalitarian societies.