Critical Realism: a Common Sense Philosophy for Environmental Education?

As plants, animals, minerals, air light, etc., in theory form part of human consciousness, partly as objects of a natural science, partly as objects of art ... so they also form in practice a part of human life and human activity. ... Nature is the inorganic body of man, that is, nature insofar as it is not the human body. Man lives by nature. This means that nature is his body with which he must remain in perpetual process in order not to die (Marx, 1944: 63).

Abstract

By and large, modern societies take it for granted that nature, or ‘the environment’, is apart from society. However, this separation promotes the view that the environment should be managed for profit or pleasure, or that it exists in exotic or wild places experienced only as a fantasy world. As a result, environmental problems are seen to arise ‘out there’ instead of inside our heads, which conceals what was obvious to Marx that people live in their relationship to a real nature. That this relationship is dialectical\(^1\) is the theme of this paper and leads me to examine critical realism as a philosophical basis for environmental education. Critical realism holds that reality can be apprehended by tracing the origins of experience through to the level of events, and then to underlying structures and processes. I show that this stratification of reality avoids the conceptual breaks in thinking associated with the narrowly calculative rationality of positivism that treats knowledge as simply the accumulation of sense-experiences, while recognising the limitations of strong forms of constructivism that assume that reality is simply dependent on our cognitive choices. Finally, I conclude by giving an example of how my attempts to develop a dialectical relationship with my students on a distance education Masters course in Environmental Education enables us to facilitate our mutual praxis as environmental educators based on a stratified view of environmental and educational knowledge.

Introduction

When the quick-witted Segrado in Galileo’s Dialogue (cited in Sobel, 1999: 180) argued against the belief, still widely held in the 17\(^{th}\) century, that the Creator would not have wasted His energy on creating a universe that was of no use to humans, he was highlighting a philosophical question about the way reality is perceived. Essentially, the philosophical debate concerns the issue of whether humans ‘construct’ reality (constructivism), or whether reality exists independently of our knowledge of it (realism).\(^2\) These opposing perspectives energise a continuing debate for environmental education research (see for example, Mrazek, 1993; Robottom, & Hart, 1993) and concern the relative merits of different methodological and philosophical approaches that have been classified by Habermas (1972) as empirical-analytic, interpretative and critical\(^3\). Segrado was astonished that people could believe that the ‘Galilean moons’ of Jupiter were constructed by the act of looking through a telescope since surely they had an independent existence prior to Galileo’s discovery of them? The claim that the existence of these moons is dependent on how people construe them is what Bhaskar (1978: 36) refers to as the ‘epistemic fallacy’. That is, that the empirical world of experience somehow allows us “the license to reduce questions about what there is (ontological questions) to questions about what we can know (epistemic questions)” (Collier, 1994: 36). I return to Bhaskar later, but I want to expand on Segrado’s belief in the existence of an independent material reality in order to overturn the view that the notion of reality is purely dependent on our cognitive choices. For those of us interested in finding a philosophical position that helps understand and improve humanity’s relationship to nature, this ‘strong’ constructivist tendency in sociology diverts attention from what seems to me to be obvious: that humanity is rooted in the natural world and that we exist in our relationship to nature. As Beck (1992, 80-1) argues:

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\(^1\) I use dialectical here in the sense of ‘interacting forces or elements’ as explained further in this paper.

\(^2\) Soper (1995) refers to these two opposing positions as ‘nature endorsing’ (of the realists) and ‘nature sceptical’ (of the constructivists). These contentions prompts Dickens (1996: 2) to write: “our knowledge of the environment and of our relations to nature are characterised by considerable ignorance”.

\(^3\) See Huckle (1993) for a critical examination of these approaches to environmental education.
Nature can no longer be understood outside of society, or society outside of nature ... in advanced modernity, society with all its subsystems of the economy, politics, culture and the family can no longer be understood as autonomous of nature (original italics).

Humans and nature are actually inseparable. Indeed, nothing is more fundamental to understanding the relationship between humans and nature than the realisation that an organism coevolves with its environment. Rational forms of Darwinism contradict this view by dissociating the internal and external forces acting on an organism. In this model, only the internal forces determine the variation between individuals while the external forces merely provide the environments in which the organisms find themselves - the ‘biological niche’ to which organisms adapt fortuitously. As Luke (2001: 193) sees it: ‘This reductionist separation of organisms from their environment is the key to the primary conceptual chasm cutting through the ragged reality of the Earth by most rhetoric of ecology’. I believe this separation works against resolution of the ecosocial crisis since that requires a commitment to accepting that there is no organism without an environment, and no environment without an organism. Organisms are engaged continually in constructing and demolishing their surroundings. It is therefore meaningless for society to adopt the slogan ‘Save the Environment’ as if it were ‘out there’, unless it is understood that humanity and environment are one, and that saving the environment is merely a matter of choice. Saving the environment requires an acceptance that the environment is an intrinsic part of human existence.

Our collective inability to grasp the significance of our dialectical relations with nature through production and consumption is all too evident in the typical ‘end of pipe’ reaction to pollution problems such as the release of toxic waste into the environment by ‘travelling back’ up the pipeline into the realm of society, environmental engineers tend to respond to environmental problems as though they are a technical issue requiring better management within the prevailing economic order. However, this approach sustains rather than critiques the environmentally damaging consequences of industrial practices and is reflected in ‘environmental studies’ courses that aim to turn out eco-managerialists equipped with the expertise to cope with the ecosocial crisis on sound scientific and technical grounds - a mode of thinking commonly associated with ‘ecological modernisation’. The assumption underpinning these courses is that since economic growth depends on exploiting natural resources, eco-managerialists are the best people to manage these resources in the interests of economic progress. The ‘management’ strain in environmental education courses obscures the possibility that there might be alternative educational approaches capable of showing better ways of dealing with escalating environmental and social problems. I suspect that the expert removal of environmental problems from the sphere of everyday life results in people becoming alienated from the rest of nature perhaps finding comfort in forms of consumerism, or media-generated fantasies that “[substitute] signs of the real for the real itself” (Baudrillard, 1993). Environmental education must overcome these conceptual breaks in thinking that perpetuate the view that environmental problems are ‘out there’, and society is ‘in here’, by situating environmental problems in students’ daily lives and re-establishing their understanding that society is connected dialectically with nature. Failing to understand this results in people remaining trapped in an industrialist mind-set that desensitises them to the ecosocial crisis and fragments their existence, a state of being that psychotherapists sometimes call ‘ontological insecurity’ (Kidner, 2001: 4).

Re-connecting with nature

Marx argued that environmental degradation is a consequence of economic exploitation driven by capitalism so that only by understanding the global capitalist system is it possible to understand why it threatens social and

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4 There is an older tradition in biology, argued strongly by Haldane (1913: 79), that the relationship between humans and other organisms is dialectical: “There is no sharp line of demarcation between a living organism and its environment.”

5 See Plant (1998: Ch2) for a further discussion of these differing conceptions of nature.

6 Ecological modernisation is well illustrated by the social transformation stemming from continuing global capital ‘marketisation’ under capitalism (see Pepper, 199, for detailed discussion of this topic).
ecological sustainability. However, I do not want to pursue here Marx’s perceptive analysis of capitalism, but to consider how his writing provides critical insights into the dialectical relationship between society and nature. Central to understanding Marx’s exposition of this relationship is that society is engaged in technical practices that remorselessly change nature through endless commodification. Thus, rather than regarding the social (actually for Marx, the ‘economic’) and natural worlds as unrelated ‘black boxes’, Marx (1954:352) argues:

Technology discloses man’s dealing with nature, the process of production by which he sustains his life, and thereby bears the mode of formation of his social relations, and the mental conceptions that flow from them.

As the quote at the start of this paper shows, Marx thought that the strength of the dependency on nature makes nature humanity’s ‘inorganic body’. The idea that ‘reality’ should be seen in terms of the relationships between the entities comprising the biophysical world collapses the classical dichotomies of Cartesian philosophy such as mind/body, human/animal, person/community, and fact/value. In Marx’s critical analysis of commodification, these dualisms all implode and force a consideration of how society and nature are tied together dialectically (Harvey, 1996: 60). From the point of view of epistemology, this ontology of dialectics transfers into method in which entities are analysed relationally rather than atomistically (Martell, 1994: 180) and is therefore contrary to the positivist methodologies from which most scientific knowledge is derived.

‘Dialectics’ implies that an object is not simply a thing but has a history of development, and it is always ‘caught up’ in this process. That is, the world is not a ready-made system (as positivism would have it), comprising concrete objects that exist independently of other objects, but it exists as a system of processes, flows and relations through which all things come into existence, then flourish and pass away. Objects, structures and systems do not exist outside of the processes, flows and relations that create, sustain or undermine them. So, for example, when we recognise that the complex pattern of social life created by humans is currently responsible for exploiting the biophysical world in unsustainable ways, we may become motivated to ‘go back up the pipes’ (see above) and to change our technologies so as to bring about a more ecologically and socially sustainable future. Such a shift in thinking confronts the troubling social and environmental realities of industrialism’s transformation of the biophysical world. For example, it recognises that technological developments such as pesticides do not remain inside the black box labelled ‘nature’ but escape to spread through the ecosphere - returning from ‘out there’ to society ‘in here’ (Luke, 2001: 95).

The recovery of reality: critical realism

People come to know nature as a socially constructed concept in two senses; not only do they shape nature by social practices as Marx was aware, but nature is also experienced and given meaning through the mediation of cultural discourses and representations. However, common sense tells me that the various manifestations of nature as landscapes, trees, mountains, food, countryside, and urban environments are not solely constructed by society, but are materially created by real structures and mechanisms in the biophysical world. Thus, even though I may wish through negligence or ignorance to dissociate myself from these structures and mechanisms, I am unable get along without them. Indeed, we are helpless without nature’s laws and can neither escape from nor destroy them even as they are exploited for our own purposes. This is a common sense view of reality and is the basis of a socially sensitive realist philosophy called critical realism developed by Bhaskar (1978, 1989). This philosophical perspective has an ontology claiming that reality is socially constructed whilst maintaining that underlying structures and mechanisms of the real world determine social arrangements and understandings (Hughes & Sharrock 1997: 164). Seen like this, critical realism mitigates the detrimental influences of strong

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7 The Marxist argument is that only the owners and controllers of capital benefit from capitalism rather than all the producers in society. The rapid advance of bureaucracy within the capitalist order has overshadowed liberal democracy and the advance of moral and aesthetic reasoning. Perhaps that is why people reacted so passionately during the WTO meeting in Seattle in December 1999 for they feared losing their personal identity as global markets sought to extend their manipulation of the labour force in the endless pursuit of commodifying everything - natural resources, social services, media information - on a global scale.

8 The idea that reality is a process not a thing goes back to the Greeks who regarded everything as flowing or in a state of flux. See Harvey (1996: ch2) for an extended overview of dialectics.

9 This may sound like the arguments promoted by ecocentric/deep ecologists, but their mission hinges on the various forms of social implosion involving such things as zero population growth, reagrarianism and ‘back-to-nature’ community living. These ideas are hardly tenable within present population levels and, in any case, seem to sustain the divisions between nature and economy/society, albeit by downsizing the latter while upgrading the former (Luke, 2001: 195) that this paper seeks to dissolve.
forms of constructivism (typical of the belief that Segrado was concerned about) that assume the biophysical world is purely a human construct, and the narrowly calculative rationality of positivism that treats knowledge as simply the accumulation of sense-experiences. It follows that a critical realist epistemological perspective depends on the building of models of understanding of these structures and mechanisms that, were they to act and exist in the postulated way, would account for the phenomena examined (Blaikie, 1993: 98).

However, people possess unique species powers that enable them to be in command of their relations with the rest of the biophysical world so that, while being a part of nature, they are also in a sense apart from nature. Whilst it is apparent that these relations are often mediated in an ecologically and socially destructive way, these unique species powers suggest that we can be sanguine about the future since they can be directed towards finding ways to bring about ecologically and socially sustainable forms of human development. This is why Bhaskar’s realist philosophy is called ‘critical’ in that, by talking of “reclaiming reality” (Bhaskar, 1989), one can be critical of the prejudices, errors, and philosophical false trails that have covered or disguised reality; and Bhaskar talks of using this ‘reclaimed reality’ as the only basis for emancipatory social practice (Corson, 1991).

A central thesis of critical realism is that the ‘epistemic fallacy’ (the failure to sustain adequately the distinction between ontology and epistemology - see above) can be resolved if scientists attempt to apprehend the nature of real objects, at increasingly deeper levels of understanding. Bhaskar uses the term ontological stratification to describe three overlapping domains of reality: the domains of the real, the actual and the empirical as shown in Table 1.

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Table 1 From Bhaskar (1978: 56)

For Bhaskar, mechanisms generate events that may be experienced. In the domain of the real, there are mechanisms that possess various causal powers producing events that may or may not be experienced directly. For example, to continue with the theme of astronomy raised in connection with Segrado’s unease at the beginning of this paper, gravity is the mechanism that governs the Moon’s orbit round the Earth since gravity is a fundamental property of all matter. The Moon’s gravitational pull is a causal power that cannot be observed directly but becomes manifest in the domain of the actual as a ‘bulge’ in the Earth’s oceans. For example, this event may be experienced in the domain of the empirical reality of everyday life as the ebb and flow of the tide on a beach, ships leaving and entering a port, or turtles laying eggs on a beach. It is important to realise that the three domains are dependent on each other. However, it is possible for events to occur without being experienced; and for mechanisms to be possessed, say at the atomic level, without being exercised in the actual domain and becoming noticeable as a sense experience.

In presenting this stratified view of reality Bhaskar realised that human experiences and consciousness are at the tip of an ontological ‘iceberg’, and reflects his contention that the domain of the ‘real’ is richer and more extensive than generally realised. Indeed, he saw the goal of science as a process of trying to capture ever deeper and more basic strata of a reality at any moment of time unknown to us and perhaps not even empirically manifest. It is clear, then, that positivism is not interested in this notion of ‘depth reality’ since it is committed to the view that knowledge of reality is simply the way our sense experiences tell us that it is. Ontological stratification clarifies one’s understanding of what science is about. It is a process of seeking a vertical explanation of reality, of deepening knowledge of reality/nature in an attempt to trace the origins of experience through the level of events to the level of structures and processes - that is, to capture the stratification of the world. Thus, the success of an explanation about the nature of reality is judged not by the number of times an expected event or experience is observed but by the logic of the links established between the levels. Bhaskar (1978: 189) is clear that: “Only the concept of stratification allows us to sustain the idea of scientific progress”.

Dialectical inquiry: towards in-depth environmental knowledge

In my role as tutor/course director for an MA in Environmental Education course running as a distance education course in my university, I am involved dialectically with my students in the process of researching the learning conditions necessary for gaining in-depth educational and environmental knowledge.¹⁰ By dialectical in this

¹⁰ See Plant (198) for a detailed discussion of the MA course rationale.
educational context I mean that our relationship does not proceed on the basis that I am an ‘outsider’ in the transactions taking place between us, where I (as researcher) look in on the students (the researched) as objects of my inquiry into their praxis. Rather, ‘dialectical inquiry’ implies that the students and I agree to internalise something from each other by virtue of the relational processes that connect us.\(^\text{11}\) It is this notion of transformation of our educational roles that underpins the course rationale. As Marx maintains, in trying to transform the world, we transform ourselves; that it is impossible to understand the world without simultaneously changing it as well as ourselves. In this sense, education is the exploration of possibilities rather than a process of deduction that is the “spinning out of the implications of known truths” (Harvey 1996: 56).

Given that the relationship between the students and myself is dialectical, how does Bhaskar’s model of a stratified reality help us to create in-depth understanding of the human-nature relationship? Let me propose that students’ knowledge is stratified into the empirical, actual and real domains as follows. Firstly, I consider the empirical domain to comprise students’ everyday educational experiences. That is, the students’ knowledge emerges from their day-to-day roles as environmental educators centred on tacit, knowing-in-action knowledge. However, these experiences derive from a deeper level of social events that the students may not be aware of but that are, nevertheless, important to know about since they shed light on how these events shape their differing experiences. Moreover, these social events or activities are regulated by or derive from underlying real mechanisms that have causal effects on the two domains above. Let me illustrate how this model highlights the significance of dialectical inquiry for the shared professional development of the students and myself by summarising my tutorial interactions with one of them.

This student being considered is a conservation officer/environmental educator working for an NGO in Colombia, and her projects involve her in the conservation of aquatic fauna such as freshwater dolphins through partnerships with indigenous communities. In discussions about her empowerment as an environmental educator related to her ecological and professional context, we established a candid and unbroken relationship resulting in an ongoing development of our praxis to the professional advantage of us both. The following example of these interactions arose out of an assessment task that asked her to investigate whether post-industrial society has an ‘hegemonic hold’ on current social thought, and to explore the implications of this claim in the development of environmental education programmes in her local communities. After some thought, she made contact by email:

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Dear Malcolm

I’m about halfway through [this module] and, yes, I can see that I shall have problems with the assessment theme:

- a. I don’t think it’s intellectually trendy to ‘retreat from the real’ in Colombia - it’s more a question of how to deal with very real violence.
- b. I don’t think postmodernism has anywhere near a hegemonic hold on current social thought here, though there are obviously many manifestations linked to the media, the economy etc.
- c. That indigenous Indian communities have little experience of what an industrial society is let alone a post-industrial one so what relevance has the question to me?
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The above response refers to her day-to-day experiences as a conservationist and environmental educator occurring in the empirical domain of her daily life. Recognising her difficulty in responding honestly to the task set, and avoiding any reference to post-industrialism, I negotiated an assignment with her that asked her to reflect on the socio-cultural events and activities in the local communities in order to explore how these events may have shaped these empirical conclusions. In responding to each other in this dialectical way, we agreed that she should focus on the following title for her assessment: *Development and Knowledge, with Reference to Indigenous Communities in the Colombian Amazon* and I asked that she consider the following questions:

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a. What are the language and cultural issues you have to face in your work with local communities?
b. In what ways did the Rio Conference fail to address the needs of indigenous people? What arguments might the Third World put forward for dismantling the idea of development?
c. How does ‘imported knowledge’ through the concept of development conflict with traditional ways of seeing the environment?
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\(^{11}\) I am, of course, also involved with my students dialogically in that we exchange information (tutorial notes, assignment reports and the like), and communicate about the course evaluation and assessment strategies. However, a dialogical relationship is not the same as a dialectical one since the former does not carry the force of intervention into our differing worlds with a view to transforming those worlds.
d. If language and different ways of knowing are issues for you, what problems do these present for environmental educators in the non-formal educational context in which you work?

In the subsequent essay, she wrote:

> Words like ‘ecology’, ‘science’, ‘development’, and ‘project’ are not part of the traditional vocabulary of indigenous peoples in the Amazon region of Colombia. Yet such words are rapidly making their way into the everyday Spanish that is now used by the majority of mestizos and Indians living along the banks of the River Amazon. Of all these words, the one with most power and weight, the one most frequently spoken, is ‘development’. Most mixed Amazon communities have been seduced by the idea of development, starting with the arrival of missionaries, doctors and teachers and, more recently, competing for international funding for the sustainable use of local resources.

Clearly, she is aware of the deeper level of the politics of knowledge that ‘exports’ to non-Western communities ‘universal’ knowledge aimed at guiding the socio-economic transformation of societies of less developed countries. Such a politics of knowledge is influenced at the deeper ontological level by mechanisms deriving from both global and local interests and are essentially to do with issues of power. For example, she notes a renewed interest in the potential of local knowledge for resource conservation that is opposed to these global pressures on local communities to change their lifestyles.

> The situation has begun to change. Local knowledge is now seen as important by many who work in development programmes and, as a result, new tensions are emerging between Western and traditional knowledge systems. International meetings such as the 1992 Earth Summit in Rio have given some prominence to the Third World point of view and to the role of indigenous peoples as caretakers of tropical forests and other environments. Agenda 21 specifically refers to the incorporation of the values, views and knowledge of indigenous people into resource management programmes and the need to protect their intellectual and cultural rights.

The global power relations that impinge on the activities of indigenous communities in the Amazon, and the potential of local knowledge for sustaining natural resources, represent causal mechanisms influencing the events in the actual domain and, in turn, in the empirical domain where the student’s conservation is practiced. Thus, we both, researcher and the researched, began to understand the stratification of knowledge underlying everyday knowledge through our dialectical engagement with the course processes. Unravelling the complicated patterns of production and consumption, including the way knowledge is used to exert control of others, should be a central concern of environmental education.

**Conclusions**

Space does not allow me to enlarge on the potential of adapting Bhaskar’s model of ontological stratification as a way of discovering how educators’ knowledge can be studied ‘in depth’ through the teaching and learning processes in MA in Environmental Education course. However, the example presented is intended to illustrate how researchers/teachers can adopt a possibly more rewarding approach to understanding how to develop environmental knowledge through a dialectical engagement between the ‘teacher and the taught’. The process hinges on a shared commitment to probing the realities of the professional lives of researcher and student with the intention of ‘liberating’ the deeper levels of knowledge underpinning our sense experiences thereby overcoming the positivist tendency to assume reality is what our experiments tell us it is. As I explained, this commitment is directed towards a critical consideration of the way reality, or nature, is disguised by the prevailing belief that society and nature are independent rather than interdependent.

**References**


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