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EDUCATION MATTERS

'Education matters' articles focus on issues and debates of relevance to geographical education. In the first of a set of three such articles, John Huckle focuses on the issues surrounding the delivery of education for sustainable development in geography.

Reconstructing Nature:

Towards a Geographical Education for Sustainable Development

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ABSTRACT: At a time when the national curriculum for schools in England gives geography the major responsibility for education for sustainable development, this article introduces teachers to the philosophical foundations and key concepts of political ecology. It suggests that these can reform and strengthen geographical education for sustainable development by changing the ways in which nature is constructed and represented in classrooms. In focuses particularly on the education of 11-14 year-olds, suggesting that more radical content, together with a more critical pedagogy, may better meet their developing needs for identity and citizenship.

'GEOGRAPHY IS A focus within the curriculum for understanding and resolving issues about the environment and sustainable development. It is also an important link between the natural and social sciences' (DfEE/QCA, 1999a, p. 14).

'Pupils should be taught to explore the idea of sustainable development and recognise its implications for people, places and environments and for their own lives' (DfEE/QCA, 1999a, p. 23)

The UK Government's commitments to European and international agreements on sustainable development, notably Agenda 21, largely explain why the revised national curriculum for state schools in England (Curriculum 2000) gives greater attention to sustainable development. The preamble to the aims states that education should be 'a route to equality of opportunity for all, a healthy and just democracy, a productive economy, and sustainable development' (DfEE/QCA, 1999b). Geography has been given the major responsibility for delivering education for sustainable development and this article explores what is involved in 'understanding and resolving issues about the environment and sustainable development' and how geography teachers might best conceptualise and teach about the links between the natural and social sciences. While written primarily for teachers, and more particularly those teaching pupils at key stage 3 (KS3, 11-14 year-olds), the article should allow students and others to reflect on their past and present geographical education and its efficacy in promoting sustainable development. The argument begins with a consideration of the meanings and values that schools are being required to promote.

The need for conceptual and ethical clarity

The preamble to the aims of Curriculum 2000 suggests that education should reflect enduring values: 'These include valuing ourselves, our families and other relationships, the wider groups to which we belong, the diversity in our society and the environment in which we live' (DfEE/QCA, 1999b). Clearly the environments in which many young people have to live undermine their physical, mental and spiritual health and should be criticised and changed rather than valued. The authors seem to be placing particular meaning and value on the term 'environment', as do the members of the National Forum on Values in Education and the Community (QCA, 1998) who suggest that certain values, including some relating to the environment (Figure 1), command such a high level of consensus in society that schools and teachers can expect the support and encouragement of society if they base their teaching and the ethos of the school on these values. The Forum maintains a false distinction between natural environments and those 'shaped by humanity' and together with the preamble to Curriculum 2000 suggests that greater ethical and

We value the environment, both natural and shaped by humanity, as the basis of life and a source of wonder and inspiration. On the basis of these values, we should:

- accept our responsibility to maintain a sustainable environment for future generations
- understand the place of human beings within nature
- understand our responsibilities for other species
- ensure that development can be justified
- preserve balance and diversity in nature wherever possible
- preserve areas of beauty and interest for future generations
- repair, wherever possible, habitats damaged by human development and other means.

Figure 1: The environment. Source: QCA, 1998.

conceptual clarity is required before geography teachers can decide how to interpret and apply environmental values in their teaching. At the core of such clarification is what the Forum lists as understanding the place of human beings within nature. Radical geographers have advanced such understanding considerably in the last 20 years and some of their key ideas will now be outlined and applied to the teaching of geography at KS3.

Dialectical materialism and the social construction of nature

The key ideas that I will outline and apply are drawn from the interdisciplinary field of political ecology (Huckle and Martin, 2001; Keil *et al.,* 1998; Walker, 1998). This unites Marxist political economy and ecology to explore how human society and environment shape each other over time. It is based on dialectical materialism and draws insights from the new physical and life sciences (Lewontin and Levins, 1996), systems theory (Wu, 1996), complexity theory (Lewin, 1997), critical realism (Dickens, 1996), critical theory (Goldblatt, 1996), feminism (Mellor, 1992), and constructive elements of post-modernism (Gare, 1995). Consequently its content and language can appear dense, difficult and unwelcoming. In attempting a simple and concise introduction, I may appear somewhat didactic or seem to suggest that key ideas from political ecology should be taught as alternative or supplementary 'truths' to those found in the syllabus or textbook. This is not the case, for as we will see towards the end of the article, political ecology has affinities with critical education and pedagogy which requires pupils and teachers to validate ideas through enquiry or reflection and action.

Dialectical materialism (Cornforth, 1961; Harvey, 1993, 1996) maintains that the world is by its very nature material. Everything that exists (including everything mental or spiritual, including our values) comes into being on the basis of material causes and arises and develops in accordance with the laws of science (materialism). The world and its laws are knowable and while there is much in the material world that may not yet be known, there is no unknowable sphere of reality that lies outside the material world (materialism is opposed to idealism). Dialectical materialism further maintains that the world should be understood not as a complex of ready-made things but as a system of processes through which all things come into being, exist and pass away. Things like mountains, forests, people, cities, governments and schools are related and changing systems of processes and relations. It is the relations between things that enable systems to function with powers to transform themselves and other systems. Things are the constitutive and constituted moments of systemic processes and it is impossible to separate things from the network of systems within which they are embedded. Part and whole, organism and environment, nature and society are all related: the one constitutes the other and there can be few grounds for knowledge that seeks to understand the one without reference to the other. Dialectics seeks to explain the general laws of movement in nature, society and thought and reflects four principles: totality (everything is related), movement (everything is constantly being transformed), qualitative change (the tendency to self organisation and complexity), and contradiction (the unity and struggle of opposites).

At KS3 pupils are to be taught to identify, describe and explain physical and human processes, and their impact on places and environments. Political ecology would suggest that that they be encouraged to understand that bio-physical and social processes act together to create nature, places and environments. While there is a bio-physical world that predates the social world, whose structures and processes are independent of human activity, and whose laws and causal powers constrain and condition all human practice and technology, such realist nature (Soper, 1995) is increasingly mediated by society. There are few if any places or regions on the surface of the Earth where we can find 'first nature' untouched by society. The rise of biotechnology, artificial intelligence and cybernetics is eroding the dividing line traditionally drawn between the organism and the machine, the natural

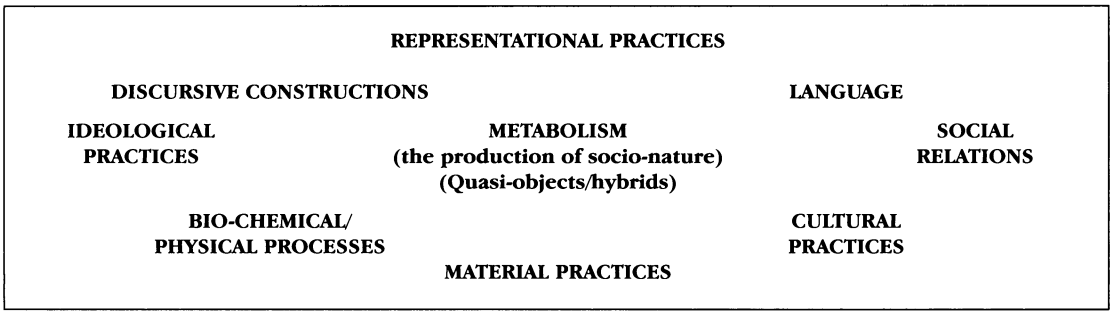

Figure 2: The production of socio-nature. Source: Swyngedouw, 1996.

and the artificial, and nature and culture (Haraway, 1992; Robertson *et al.*, 1996).

Sustainable development is essentially about the metabolism between human and non-human nature that creates 'second nature' (places, environments, culture or socio-nature) in the ways suggested in Figure 2. Processes of economic production and social reproduction (material practices) produce nature materially through the interaction of bio-physical processes and cultural practices (work of all kinds), while representational practices (language and discourse, including 'stories' about nature and the environment) produce nature existentially as meaning. Both sets of processes are shaped by social relations (the relations of power and control between people) and by ideological practices that may foster false beliefs about nature, society and the environment.

What is frequently referred to as the social construction of nature (Smith, 1984, 1996) means that pupils should learn that there is nothing unnatural about themselves or the mainly urban environments in which they live. Both shape and are shaped by bio-physical realties but both are the products of material and representational practices that have temporal and spatial dimensions. Both are being socially constructed and represented in ways that are more or less just, democratic and sustainable, and a school geography that seeks to educate for sustainability should critically explore how they might be re-constructed and re-represented in more sustainable ways. This will involve introducing pupils to our contradictory role in relation to the rest of nature.

The place of human beings within nature

Understanding 'the place of human beings within nature' (Figure 1) means recognising contradictions that lie at the heart of the human predicament. People are part of nature (members of a biological species, dependent on bio-physical resources to supply their material needs) yet apart from nature (have powers of language and technology that enable them to transform their inherited nature and the natures that surround them). Humans create rather than live their natures for their interactions with the natural world go beyond mere survival and reproduction. Given favourable conditions they are able to develop sociability and their intellectual, aesthetic and spiritual powers. They can apply their growing understanding of the world to the regulation of their relations with one another and the rest of nature, and so develop democratic forms of global governance and citizenship that provide grounds for optimism concerning progress towards more sustainable forms of development.

Art and literature suggests that human culture shows a permanent tension between immanence (the pull of nature or the desire to live according to nature) and transcendence (the pull of culture or the desire to rise above the harsh realities of nature). Capitalist modernity has furnished us with particularly limited and ecologically irresponsible forms of transcendence and the challenge of sustainable development is to rethink and restructure production and consumption in the light of ecological constraints (Soper, 1999). This will involve uncoupling our pleasures and modes of self expression from reliance on the exploitation of people and environments near and far, and adopting a more cyclical and reproductive (more 'natural' or immanent) mode of interaction with the bio-physical world. Finding new forms of creativity and progress that are not dependent on materialism and the continued compression of time and space will mean creating new divisions of time, labour and wealth with the help of new technologies. Reduced working hours in the formal economy, together with new forms of welfare and citizenship, could free people to develop more fulfilling and entrancing ways of

being, and erode the alienation from nature they currently experience (Little, 1998; Paehlke, 1998).

Alienation or a sense of separation from nature is a feature of modern societies. It results from people neglecting their health and bodies in the rush of modern life; losing contact with the land, plants and animals through urbanisation; being separated from the product of their labour or transformed nature at work; failing to understand and appreciate the people and environments that supply their needs from a distance; and having less real contact with others as communities of mutual aid and support decline and individualism increases (Pepper, 1993). Dominant forms of transcendence mean that most people in the world are to varying extents alienated from their inner nature, from external nature, and from the rest of human nature, and that their sense of loss manifests itself in rising levels of physical, mental and spiritual illness. Modern divisions of academic and educational labour increase such alienation for the organisation of academic knowledge into specialist subjects, and its separation from lay and tacit knowledge, fails to enable a coherent understanding of the world and our current environmental predicament (Dickens, 1996). A school geography based on dialectical materialism can erode the alienation induced by much specialist subject teaching but it will need to acknowledge and build upon the everyday (lay) knowledge of pupils and the local community and acknowledge the value of tacit environmental knowledge that cannot easily be described and encoded in impersonal forms.

Geography at KS3 should celebrate people's intellectual, aesthetic and spiritual powers as revealed in places and environments, and use case studies to develop a sense of optimism concerning people's powers to improve technology, social regulation and governance and so create more sustainable forms of development. It should use art, literature and media of many kinds to focus on the tension between immanence and transcendence, and should explore alternative futures that may allow more sustainable and fulfilling ways of life. Pupils should discuss the extent to which they and others feel alienated from nature and should engage in activities and projects that put them in touch with their bodies, the land, the relevance of their school work to viable futures, those people and environments who supply the goods and services they consume, and other people in the diverse communities that shape their lives. Teachers should acknowledge that abstract and specialist knowledge intensifies alienation and should interpret geography generously so that it integrates a wide range of knowledge from the natural and social sciences and the humanities, and builds on the lay and tacit knowledge of the community. Geographical enquiry at KS3 can support a wide range of activities and projects that foster such integration.

Environmental ethics and politics

If human societies are to reproduce themselves over time, three sets of relations need to be sustained (Hartmann, 1998):

1. Relations among humans based on mutual respect and tolerance. Such relations would ensure equitable access to food, clothing, health care and meaningful work; freedom of thought and ability for mental development; democratically determined economic and political decisions.
2. Relations among human and other species where the attempt is made to minimise human domination of and impact on other species.
3. Relations among organisms and their environment that have created climate, the hydrological cycle, background radiation levels, and other environmental conditions that we have experienced throughout most of human history.

Creating and sustaining these relations requires us to care for the welfare of other human beings, future generations, and other species. It requires us to adopt a weakly anthropocentric environmental ethic that accepts the instrumental or economic value of nature but balances this against its scientific, aesthetic, spiritual and existence values. *Caring for the Earth* outlines such an ethic for living sustainably that:

> 'recognises the interdependence of human communities and the duty each person has to care for other people and for future generations. It asserts our responsibility towards other forms of life with which we share this planet. It recognises that nature has to be cared for in its own right, and not just as a means of satisfying human needs' (IUCN/UNEP/WWF, 1991, p. 13).

In reality it is dominant social structures, institutions, ideology, and material and representational practices (Figure 2) that

reproduce unsustainable relations and prevent the implementation of an ethic for living sustainably. Once we have acknowledged the constraints and opportunities of realist nature and recognised that everyday natures are increasingly the product of social forces, then the political question becomes:

> 'how, by what means, and through what social institutions, is the production of nature to be organised? How are we to create democratic means for producing nature? What kinds of nature do we want? These are, in the end, the central questions for a revolutionary environmentalism' (Smith, 1996, p. 50).

Debates over such issues as transport, energy, genetically modified foods, debt relief and world trade remind us that workers and citizens' movements are struggling to implement an ethic for living sustainably and that they receive varying degrees of support and opposition from the private sector, governments, political parties, and other interests within civil society. While environmental politics (Connelly and Smith, 1999) shapes present and future natures, geography at KS3 continues to give too much attention to people's attitudes and values and too little to social structures, power and politics. The introduction of citizenship education should remedy this deficit for it requires geography to develop knowledge and understanding of the institutions and systems that influence pupils' lives and communities; how to participate in decision making; the world as a global community; and the issues and challenges of global interdependence and responsibility (Huckle, 2001). The next section explores some themes from political ecology that might be explored as teachers and pupils cover the countries and themes required at KS3.

Themes from political ecology

No study of economic activity and its impact can ignore *political economy*. Pupils should understand that to produce and accumulate wealth people organise themselves or are organised into social relations of production and exchange that involve varying degrees of exploitation of human and non-human nature. The capitalist world system is based on core/periphery relations that involve wealth flowing from 'less developed' to 'more developed' countries, a process linked to the dynamics of globalisation (Johnston, 1989; Peet, 1991). Pupils should relate the use and production of nature (resource issues) in different places to their position within the global division of labour and should recognise that global capitalism displays two contradictions. It pushes down wages to subsistence level creating demand crises or periodic slumps at the same time as it undermines its conditions of production including natural resources and services, human health and education, and urban and rural space free from pollution and congestion. The corporate raiding of nature drives up the costs of production as sustainable resource management, welfare services and environmental planning are neglected. Collectively irrational behaviour intensifies such environmental risks as climate change, loss of biodiversity and food safety, and nature 'taking its revenge' prompts reflection and action on a reformed or alternative world order (Korten, 1995). States in the core can afford varying levels of welfare provision and environmental management and planning, but to their business and political leaders, sustainable development generally means only a slightly greener version of business as usual. Like the preamble to Curriculum 2000, the Government's 1999 White Paper on sustainable development sees no possible contradiction between such development and 'high and stable levels of economic growth'.

In studying economic activity, resource issues and population, pupils should be introduced to the themes of *environmental justice* and *gender and the household.* They should understand that the social construction of nature is a matter of class, gender and ethnicity, and should explore how various individuals and groups are advantaged and disadvantaged through the operation of material and representational practices. They should recognise that it is the rich who generally live and work in the most healthy and satisfying environments while the poor suffer varying degrees of environmental deprivation (Dorsey, 1997). The upper and middle classes construct the environment largely in terms of green issues (the countryside, rare species, wilderness, recycling) while the concerns of the working class and underclass are about brown issues (safety at work, air pollution, toxic waste, cheap healthy food). It is women who do most of the work that ensures the biological and social reproduction of society yet they are particularly disadvantaged by the undermining of the conditions of production.

They may have to travel further for water and fuelwood, care for the sick and elderly with less support, cope in shelter that is more prone to cold or flooding, or manage land and the household alone as men migrate in search of work.

In learning about the lives of the poor in different places, it is important that pupils are introduced to *environment and livelihood movements*. Such movements are widespread and link environmental justice and sustainable development to local control of bio-physical resources. Local people have sophisticated lay and tacit knowledge and direct incentives to sustain the productivity of the environment on which their livelihoods depend. Sustainable develop-ment based on local knowledge, needs and self management is more likely to succeed, but such movements do display political and ideological tensions and often come up against limits imposed by undemocratic structures from above. Community livelihood movements are more common in the South but teachers should not neglect such initiatives as self-build housing, food co-operatives, local economic trading schemes and community gardening in the North (Symons, 1997). Environment and development non-governmental organisations and local government officers can often link schools and teachers to such initiatives.

Our consideration of political ecology suggests that no geography curriculum can ignore *environmental history* (Ponting, 1991). All places, landscapes and environments (including 'natural' regions) have been shaped by past political economies and social relations, and historical geography reminds us that the relations between society and nature are never static but always shifting. Conservation policy in the colonial era, for example, reflected a unique combination of political manoeuvre, racism, technological blunder and western cultural constructions of nature. In British South Africa conservation policies constructed an ecologically ignorant and destructive native culture restricting African access and favouring white hunting. Consequently, conservation was subsequently viewed with antipathy or apathy by local people and its meaning and practices had to be reconstructed before they were prepared to support conservation projects. The present cannot be understood without reference to the past and history provides 'parables' that point to multiple possibilities.

Teachers will be cautious of tackling the theme of *ideology and scientific discourse* at KS3 but it can be presented in a simple but meaningful form. Pupils should be encouraged to realise that the ways we view nature and generate, interpret and communicate the 'science' of environmental problems and risks can never be objective, universal, or value free. Environmental history shows significant shifts in people's perception and understanding of nature and contemporary scientists, geographers, policy makers, journalists, textbook writers and others employ diverse concepts and information in presenting the environment to us. Pupils should understand how pre-modern and modern attitudes to nature differ, how geography encouraged limited or false understandings of society and nature in the past, and how different media, including advertising, construct nature today. They should work with texts and images of many kinds, exploring how nature is presented and represented and how different representations serve or undermine different interests. In what ways did traditional views of nature (that involved holism, animism and totemism) stress immanence and support sustainable resource use? How did views of nature change with the rise of modern societies? How and why did nature come to be seen as 'waste' or 'resource' – a raw nature handed down by God as an incomplete project to be tamed through human rationality in the name of progress? How and why did transcendence come to dominate over immanence? How are the risks associated with global warming or food safety being presented and how does this shape the politics of the issue? How are views of nature changing with post-modernisation? Not the language you would use in the KS3 classroom but perhaps sufficient to hint at a neglected but significant dimension of studying environmental issues in geography classrooms.

Central to the theme of ideology and scientific discourse is helping pupils to understand ideologies that attribute to nature inequalities and sufferings that are due to the organisation of society. Such ideologies legitimate sexism, racism, homophobia and other forms of oppression and have shaped geography in the past. More recent philosophical approaches to the subject, such as positivism, humanism, the ecosystem approach, and post-modernism, continue to misrepresent people's relations with nature (Sayer, 1983; Barnes and Gregory, 1997). McNaghten and Urry (1998) provide an overview of contemporary environmental doctrines while Dryzek (1997) suggests that a combination of three environmental discourses (democratic pragmatism, ecological modernisation, and green rationalism) should guide our transition to sustainable development. Readers might like to

obtain a copy of *Education for Sustainable Development in the Schools Sector,* the report from the Panel on Education for Sustainable Development (1998), or visit the national curriculum website (see National Curriculum, 2001) which presents its main findings. While the key concepts the Panel recommends are to be welcomed, they are interpreted in ways that reflect elements of environmental idealism and green romanticism (Dryzek, 1997; Huckle, 1999).

Mention of post-modernisation in a previous paragraph signals political economy's concern with the restructuring of political economy and the emergence of what is variously described as disorganised capitalism, network society, risk society, or post-modernity. Within these new forms of political economy nature is both the site of new forms of capital accumulation and the source of increasing numbers of signs and symbols that pervade our everyday lives (Braun and Castree, 1998). Societies that formally expanded outwards to push back the frontiers of a non-commodified nature and create such forms of economic activity as commercial agriculture, now turn inwards to remake these social natures afresh and commodify such new ones as the human body. At the same time the foundations of social structure and agency shift from the sphere of production to that of consumption. Seeking pleasure through consumption becomes a duty and social integration works through the seduction of the market place or the mix of feelings and emotions generated by seeing, holding, hearing, tasting, smelling and moving through the vast array of goods and services, places and environments that characterise contemporary forms of consumerism organised around particular cultures of nature (Lash and Urry, 1994).

The themes of *the body, identity, and consumerism* preoccupy many 11-14 year-olds and can provide a route to other themes that have less immediate appeal. At that age bodies are changing rapidly and young people are becoming increasingly aware of the importance of bodily appearance and meaning. The body is a potent zone of self expression, giving scope for creativity and allowing a body politics expressed through fashion, adornment, diet, exercise, and sexual behaviour. International and popular culture bombards us constantly with body consciousness, defining and selling desirable and available identities and creating the kind of conformity all too familiar to those teaching at KS3. At the same time the body is our prime source of pleasure and pain, our first point of contact with the environment, a potential source of delight, and an amazingly powerful medium for transmitting information and emotions. Environmental issues and risks exist in our bodies and take different routes in and out. Their existence in our bodies is more or less acknowledged or denied and the embodiment of environmental issues is a powerful context within which to introduce and explore the material and discursive construction and reconstruction of nature (Payne, 1999).

Having alienated us from nature, capitalism then compensates us for our loss by selling us nature in a 'fetished' form. Retail chains such as Body Shop and the Discovery Store sell us objects, replicas and images of nature; supermarkets and restaurants offer us more 'organic' or 'natural' foods; recreation and tourism promise to restore our inner nature or transport us to 'natural' environments; while the media provide us with such constructed natures as those displayed on The Animal or National Geographic channels. Such consumption is contradictory. On the one hand it increases our ecological footprint on the planet and conceals the true social and environmental costs of what we consume, while on the other, it can answer real needs, encourage reflexivity and so foster a more radical environmental politics. Disorganised capitalism requires and produces more reflexive workers and consumers (individuals who can constantly monitor their work and consumption and change it in response to incoming information) and growing cognitive and aesthetic reflexivity has encouraged new forms of identity, consumer and environmental politics. People are more inclined to view themselves as part of nature rather than apart from nature; are more aware of their responsibilities to one another, the rest of nature, and future generations; and more sceptical of science and scientific experts. Many would argue that reflexivity is a luxury that only the relatively affluent can afford and that the new politics cannot compensate for the decline of the old politics and civil society (Furedi, 2000). There is however a sense in which culture has come to the rescue of nature and intensified debate on the rights and responsibilities of consumers, governments and corporations (Lloyd, 2000).

Teachers seeking ways of exploring the body, identity, and consumerism with 11-14 year-olds might start with the *Adbusters* magazine or website (*Adbusters,* 2001). *Adbusters* are skilled at deconstructing images and advertisements and have run powerful campaigns against such interests as those of McDonalds (Vidal, 1997). They might discuss ideas and activities with Colleagues in English, media studies, and

personal, social and health education (PSHE), and tune in more closely to their pupils' concerns about these themes.

The need for change

During the recent period of conservative restructuring of the economy, society and education that resulted in greater poverty, environmental degradation and alienation, the theory and practice of a critical education that can contribute to social justice, democracy, sustainability and freedom was kept alive largely by those working in the adjectival educations. Not all development or environmental education is critical but both fields contain elements that are based on dialectical materialism, employ critical theory and pedagogy, and can contribute to a genuinely empowering education for sustainable development.

Critical education draws on dialectical materialism to suggest that since all scientific laws and moral truths are relational, or dependent on context, knowledge and truth become practical questions. The validity and power of ideas is demonstrated by their utility with theory being a guide for practice and practice a test of theory. People are beings of praxis (reflection and action) and it is through revolutionary praxis or critical action research within communities that people can overcome their alienation from nature and realise more sustainable and emancipated ways of living (Hart, 1997). Praxis (Gadotti, 1996) provides, means of developing pedagogy, curricula, teachers as professionals, and sustainable communities, and its theory and practice is being updated for post-modern times (Castells *et al.*, 1999; Parker, 1997).

It is critical environmental educators who have linked political ecology with critical education and pedagogy (Fien, 1993; Gough, 1997; Huckle, 1988-93; Huckle and Sterling, 1996; Plant, 1998; Smith and Williams, 1999) and their work fails to find its equivalent in geography at the secondary level. The school subject as prescribed in the national curriculum and constructed by the more popular textbook series is profoundly conservative and limiting (Huckle, 1997). It generally fails to explain how the world works, how nature is constructed, and how it might be constructed more sustainably. Too many pupils are left alienated, bored and disenchanted by geography lessons that do not answer their need to understand their present and likely future place in the world and how this shapes both their identity and their rights and responsibilities as citizens. Too many teachers are deskilled and deprofessionalised by continuing conservative educational reform. The message of *Geographical Education* (Huckle, 1983) is more relevant today than it was almost 20 years ago. Socialist geography teachers should struggle for a more radical and empowering school geography as part of the broader struggle for a better world.

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