

Education for Sustainable Development: the case for a socially critical perspective

A contribution by

John Huckle

South Bank University

john@huckle.org.uk

to

Environmental Education; from policy to practice

British Council Seminar

Kings College, London

4 – 10 March 2001

Welcome to London and Europe, the cradle of the Enlightenment. Europe, the continent that saw the birth of modern science, industry, rationality, progress and development, where the founding fathers of modern social science were prompted to develop social theory as they saw Enlightenment and development taking one or more wrong turns. In recent decades there has been renewed concern that modern forms of development are not sustainable and now contemporary social theorists throughout the world provide us with a wide range of diagnoses of our predicament.

As its name suggests socially critical environmental education (SCEE) or socially critical education for sustainable development (SCESD) is based on critical social theories that focus on the environment, education and development. My talk begins by looking at two contemporary authors of such theory.

Two contemporary social theorists

Manuel Castells is the Professor of Sociology and Planning at the University of California, Berkeley. His trilogy, *The Information Age*, which analyses the structures, processes and contradictions of what he terms info-capitalism or network society, has been compared with Marx's *Capital* in terms of its scope and depth. In a recent essay (Castells, 2001) he asks whether the trends within contemporary global society are sustainable.

My answer is no. The illusion of a world made up of Silicon Valley-like societies driven by technological ingenuity, financial adventurism and cultural individualism, high-tech archipelagos surrounded by areas of poverty and subsistence around most of the planet, is not only ethically questionable but, more important for our purposes, politically and socially unsustainable. The rise of fundamentalism, the spread of new epidemics, the expansion of the global criminal economy – with its corrosive effects on governments and societies around the world – the threat of biological/nuclear terrorism, the irreversible destruction of the environment (that is, of our natural capital, the most important legacy for our grandchildren), and the destruction of our own sense of humanity, all are potential consequences (many already under way) of this dynamic, yet exclusionary model of global capitalism. (Castells, 2001, p. 67)

He goes on to explain that there are three different, although inter-related, sources of unsustainability for info-capitalism:

- *The dangers of implosion of global financial markets;*
- *The stagnation caused by relative shrinkage of solvent demand in proportion to the extraordinary productive capacity created by technological innovation, organisational networking, and mobilisation of capital resources;*
- *The social, cultural, and political rejection by large numbers of people around the world of an Automaton whose logic either ignores or devalues their humanity. (Castells, 2001, p. 67)*

The rise of anti-capitalist or anti-corporate protest, a feature of Castell's third source of unsustainability, is the theme of Naomi Klein's best selling book *No Logo* (Klein, 2000). She has helped to reinvent politics for a new generation by revealing the oppressive social and environmental relations behind such brands as Levi, Nike and Starbucks, and showing how they capture the protest of the young, strip it of radical content, and then sell it back to them as a source of profit. The four parts of *No Logo* are:

- 'No Space' (the surrender of culture and education to marketing – an erosion of civic space)
- 'No Choice' (the betrayal of the promise of choice by mergers, predatory franchising, synergy and corporate censorship – an erosion of civil liberties)
- 'No Jobs' (labour market trends that are leading to more insecurity for many workers – an erosion of employment rights)
- 'No Logo' (the rise of anti-corporate activism that is sowing the seeds of genuine social alternatives to corporate rule). (Klein, 2000, p. XXI)

Anti-corporate activism is global, chaotic and anarchic, a network of disparate citizens' and workers' movements with diverse beliefs and tactics practising postmodern forms of politics and pedagogy. Its politics combines issues of social justice with issues of identity and culture and its pedagogy consists of new forms of popular education that make use of new technologies such as the internet. This education combines academic and local knowledge as people reflect and act on how they can reclaim space, restore the public sphere, and thereby create a zone of self management or autonomy beyond the market and the state. Such space allows experiments with alternative lifestyles and forms of social organisation that moderate modernity's obsession with growth, individualism, technocracy, consumerism and reductionism, with renewed attention to sufficiency, collectivism, self management, personal development and holism. It allows a vibrant civil society, and active and critical citizens who are more likely to demand new forms of global governance that can regulate info-capitalism so that it works in the public interest. Self management, radical democracy, and global governance are the keys to sustainability for only when people have roughly equal power to shape society and its relations with the rest of nature, will they be able to realise their common interest in sustainability.

Critical social theory

The writings of Castells and Klein remind us that social theory has both descriptive and prescriptive dimensions. It tells a story of how society is and how it ought to be. It advances particular normative or value-based judgements, offering justifications and principles to support claims about how society should be ordered, sustained or changed. The prescriptive aspect of a social theory can be conservative (mainstream), legitimating, defending or justifying existing social and environmental relations or the status-quo. Alternatively it can be critical (radical), as in the cases just examined, responding to perceived ills of society by suggesting reasons why it should be organised on different principles with different institutions. Marxism is the classic example of a **critical society theory**, criticising liberal capitalist societies and suggesting socialist and communist alternatives.

In addition to being either conservative or critical, social theories are either naturalist or social constructionist in the way that they view nature and the environment. **Naturalist theories** see nature and the environment as external to society, existing as an independent order, while **social constructionist theories** see them as partly or wholly social constructions. Social Darwinism (naturalist) and neoclassical economics (constructionist) are examples of mainstream theories, while anarchism (naturalist) and Marxism (constructionist) are examples of critical theories. SCEE and SCESD draw strongly on approaches to nature and the environment developed by Marxists, particularly members of the Frankfurt School.

The Frankfurt School shifted the focus of critical theory from the economy to culture and saw the dominance of **technical-rationalism**, instrumental reason, or positivism, at the root of social problems. Oppressive social and environmental relations are masked by oppressive ideas (ideology), the cult of the expert, a limited concept of rationality, and an insistence that all social, environmental and educational questions are technical (rather than moral or political) questions requiring answers supplied by technical means. Continued Enlightenment and social progress depend on eroding the dominance of technical-rationalism and applying improvements in rationality and ethics to the construction of democratic institutions and forms of governance that allow people's common interests in social justice and sustainability to emerge. Critical education has a key role to play in securing such improvements and thereby facilitating people's emancipation from oppressive relations.

SCEE and SCESD supplements such insights with ideas from political ecology, feminism, critical realism, theories of reflexive modernisation, post-industrial socialism, and constructive postmodernism. These share a common foundation in materialist and dialectical philosophy; offer complementary analyses of related crises of ecological, economic, social, cultural and personal sustainability in the contemporary world; and prescribe sustainable social alternatives that involve new forms of technology, economy, social welfare, governance, ethics and education.

Critical realism (Dickens, 1992, 1996) is particularly significant for the development of 'green social theory' and SCESD for acknowledges our biological embodiedness and ecological embeddedness; regards humans as both part of yet apart from nature; and sees environmental relations as both constituted by and constitutive of society. It overcomes the separation of nature (environment) and society associated with positivism and naive environmental realism (MacNaghten & Urry, 1998); opposes environmental idealism and the kind of strong social constructionism associated with postmodernism; and offers a framework for uniting the natural and social sciences. It suggests that academic divisions of labour are a key source of alienation in the contemporary world and suggests a critical pedagogy that unites academic and local knowledge (see Figure 2 on post-normal science below). A number of texts provide an overview of critical social theory as it relates to the environment and sustainability (Barry, 2000, Goldblatt, 1996, Martell, 1994).

Critical Education and Reflective Teaching

The rise of modernity and modern education were accompanied by the emergence of critical theory and pedagogy in education. This is critical of education's role in reproducing oppressive social and environmental relations, and insists that education as enlightenment should free the mind and society from the distortions of ignorance, ideology, irrationality, tradition and habit. Critical educators believe that emancipation entails commitments to individual autonomy, collective self management, social justice, and sustainability. They believe that education can improve society by securing improvements in **rationality** for only if we have clear and accurate accounts of reality (of social and environmental relations) can we diagnose problems and set about constructing more just and sustainable futures. Since emancipation involves freeing both individuals and institutions from irrational practices and ideas, critical pedagogy employs critical theory in ideology critique and the construction of socially useful knowledge through inquiry or action research. Such processes develop self knowledge and citizens who increasingly see themselves in terms of a shared framework of rights and responsibilities. This framework binds us to each other and the rest of nature and should not be based solely on technical or instrumental rationality but also on communicative rationality that is open to all relevant evidence and perspectives, and subjects all beliefs to rigorous public examination. Rationality is intimately tied to **democracy** for failure to suspend power hierarchies and consider all views results in partiality and loss of rationality.

Since they are based in dialectical materialism, critical theory and education based maintain that knowledge and truth are practical questions or that the rationality and validity of ideas is demonstrated by their utility. Knowledge starts from activity in the material world and returns to it dialectically when ideas shape action. Theory is a guide to practice and practice a test of theory. People are beings of **praxis** (reflection and action) and it is through revolutionary praxis that they can overcome their alienation from nature, realise their species powers, and make the transition to sustainable development (Gaddoti, 1996). Critical education is not simply an encounter of people in dialogue seeking meaning or knowledge, but an encounter in praxis that seeks socially useful knowledge and social transformation (Burbules, 2000).

Continuing in directions set by certain philosophers of the Enlightenment and early socialist and anarchist educators, today's critical educators include reflective teachers, action researchers, liberationist philosophers in the South, members of the critical thinking movement, and some postmodern educators (Gibson, 1986, Parker, 1997, Popkewitz, & Fendler, 1999, Wright, 1989, Young, 1989). All are committed to the authority of reason (appeal to reason in solving disputes) and are ready to submit all ideas, including those of critical social theory, to rational argument and contestation in situations of free and equal dialogue, informed by practice.

Critical pedagogy (Kincheloe & Steinberg, 1998) requires teachers and students to:

- learn to 'read and write' the world, to understand it and change it (social and environmental literacy);
- develop a healthy and creative scepticism regarding knowledge, texts and discourses of all kinds;
- develop research skills as they find new ways of creating and recreating knowledge that challenges common sense views of reality;
- become aware of the relations between knowledge and power;
- become collaborative researchers into the obstacles that block the achievement of their goals and dreams;
- apply and evaluate knowledge, including all kinds of critical theory, in relation to context, experience or practice;
- learn to act in informed, socially just and democratic ways as critical and active citizens;
- exercise an increasing amount of control over their own learning and development.

More specifically in the context of EE and ESD it requires them to:

- develop a critical understanding of the structures and processes shaping societies and their relations with the biophysical environment;
- reflect and act on those technologies and forms of social organisation (economy, values, beliefs, laws, institutions and forms of governance) that may allow societies to develop sustainably within ecological limits.

Such pedagogy requires teachers to exert their **authority** by virtue of their ability to assist students as they conduct research and produce socially useful knowledge. Teachers should be guardians of critical knowledge who are skilled in democratic teaching and learning activities, and have a thorough grasp of relevant content knowledge, the history of that knowledge, and debates surrounding its political and cultural significance. They should however relinquish their authority as providers of truth, allowing students and communities to reject, revise or adopt ideas, including critical theories, according to their proven value in advancing inquiry and ultimately personal and social welfare. Critical theory has a role in helping teachers and students formulate problems, challenge certainty, develop generative themes, guide inquiry, and correct misunderstandings, but it is ultimately only 'one voice rather than the last word' and it is learners and communities that should decide its validity or 'truthfulness' through discursive dialogue linked to action. While there is much advocacy of inquiry based EE and ESD much of this does not make use of critical theory or indeed critical pedagogy.

Socially critical pedagogy in EE and ESD is associated with such English language writers as John Fien (Fien, 1993, <http://www4.gu.edu.au/ext/unesco>), Annette Gough (Gough, 1997), Richard Hart (Hart, 1997), Malcolm Plant (Plant, 1998), and Arjen Wals (Wals, 1999). Since analysing the environmental and educational ideologies underpinning education about, from and for the environment (Huckle, 1983), my own work has involved developing a socially critical EE curriculum for older pupils (Huckle, 1988) and a course of professional teacher education for sustainability (Huckle et al, 1995). The book I edited with Stephen Sterling (Huckle & Sterling, 1996) made the case for SCESD and the geography textbook I have recently written with Adrian Martin (Huckle & Martin, 2001) suggests how critical theory might be introduced to undergraduates. That book concludes by examining the prospects for sustainability in postmodern times.

The challenge of postmodernism

As we saw at the start of this talk, critical social theorists are much concerned with the rise of what Castells terms network society or info-capitalism, and others term postmodernity (Lyon, 1999, McGuighan, 1999). Economic and political structures and processes are taking on new forms and shaping new aesthetic, intellectual and cultural styles (postmodernism). Postmodernism maintains that all knowledge is socially constructed and contextual and that there are no forms of representation, meaning or rationality that can claim universal status. It is sceptical of modern grand narratives (such as liberalism and Marxism) that entail the emancipation of the rational subject and the pursuit of progress through the application of science and technology to the transformation of the natural world. It questions modernity's ethnocentric equation of history with the 'triumphs' of European civilisation and its claim that the industrialised Western countries constitute a legitimate centre for viewing world affairs. Constructive postmodernism offers new forms of post-normal or citizens' science (Figure 1) that provide new possibilities for curriculum development in EE and ESD. It also offers a new view of the contradictory and multi-layered subject that challenges modern education's view of the unified rational subject (Figure 2).

Normal (Modern) Science	Post-normal (Postmodern) Science
<p>Empirical data leads to indisputable facts or true conclusions. Uncertainties are tamed by reducing complex systems to their simple elements.</p> <p>Scientific knowledge is assumed to be qualitatively different from the lay and tacit knowledge of the public. It seeks orthodoxy, replicability, and universality.</p> <p>Accredited scientific experts discover 'true facts' for the determination of 'good policies'. The public are seen to lack expertise and knowledge of science and are effectively disqualified from participation in scientific debates. Expert scientists speak for the environment in policy debates.</p> <p>Abstract theoretical knowledge is validated by conventional peer community of scientists.</p> <p>Values are irrelevant (hidden).</p> <p>Knowledge alienates passive citizens. Scientific expertise and expert decision making</p> <p>Normal science and technocracy remain legitimate so long as environmental and social problems can be solved or ameliorated to the satisfaction of a 'distracted' electorate.</p>	<p>Recognises uncertainty and a plurality of competing but legitimate perspectives. Quality replaces truth as the organising principle.</p> <p>Scientific knowledge is complemented by nonscientific expertise or elements of the public's lay and tacit knowledge (local knowledge, contextual knowledge and active knowledge). It seeks plurality and heterogeneity but avoids relativism.</p> <p>Scientists participate in dialogue with the private sector, government, and civil society to assess the quality of scientific knowledge in the context of real life situations. Scientists help citizens to produce citizens' science and speak for the environment in policy debates.</p> <p>Socially useful knowledge is validated by an extended peer community in such a way that personal experience, citizens' concerns and scientific expertise come together to provide a more holistic perspective on science policy issues.</p> <p>Values are central (explicit).</p> <p>Knowledge empowers critical and active citizens as agents of sustainable development.</p> <p>New technologies and the associated risks intensify a legitimisation crisis and prompt new forms of public consultation, participation and governance that encourage post-normal science.</p>

Figure 1 Normal and post-normal science (Based on Eden, 1998, Sardar, 2000)

The Enlightenment Subject	The Postmodern Subject
<ul style="list-style-type: none"> Is HOMOGENEOUS – all subjects share the same basic nature; Is UNIFIED – individual subjects do not possess internal contradictions; Is RATIONAL – characterised by the power of conscious reason; Is AUTONOMOUS – able to exercise its reason in order to be self-governing; Is STABLE IN IDENTITY – unchanging over time; Is an INDIVIDUAL – possessing unique qualities and abilities (although not different basic natures) that mark it out as distinct from all others. <p>A sovereign individual, with a solid and stable core, possessing powers of rational autonomy.</p>	<ul style="list-style-type: none"> Is HETEROGENEOUS OR FRAGMENTED – patched together out of a variety of different bits of values, identities and beliefs; Is DISPERSED OR DECENTRED – characterised by all sorts of internal divisions, such as that between consciousness and unconsciousness; Is SOMATIC - inseparable from the body and its needs and desires; Is CREATIVE – while lacking the modernist power of autonomy, it may be inventive in ways unknown to the modernist subject; Is UNSTABLE – changing over time; Although not a self-contained individual, the patchwork of which it is composed may mean it is at least IDIOSYNCRATIC. <p>A complex combination of relatively random components.</p>

Figure 2 The modern and postmodern subjects compared (Thompson 1998, p. 148)

Postmodern pedagogy

The writings of such critical educators as Henry Giroux and Peter McLaren (Castells et al, 1999, Hartley, 1997) suggest that it is possible to combine postmodern sensitivities to subjectivity, local voices, and difference with the modern ideal of a democratic public sphere of reasoned argument and debate. This need not mean a commitment to grand narratives or universal forms of rationality and knowledge, but it does mean rejecting total relativism and accepting that it is possible to judge one validity claim against another in specific circumstances. By listening to voices on the borders (including the voice of the rest of nature), postmodern or border pedagogy is able to draw from all sites of biological and social reproduction and so widen and deepen its understanding of radical democracy and ecological citizenship. Anti-corporate and anti-capitalist protest suggests that such pedagogy has the potential to empower those groups who have hitherto lingered powerless, oppressed and silent on the margins of society. It has profound implications for the selection of curriculum knowledge and texts for like Naomi Klein, voices from the margins often have the expressed intention of engaging in cultural politics and replacing official knowledge and science with more realistic alternatives.

Postmodern pedagogy also recognises the plight of youth caught between the borders of a modern world of certainty and order informed by the culture of the West and its technology of print, and a postmodern world of hybridised identities, risk, electronic technologies, local cultural practices, and pluralised public spaces (Giroux, 1999). Youth in network society experiences programmed instability informed by a general loss of faith in modern narratives of work and emancipation; recognition that the indeterminacy of the future means confronting and living in the immediacy of experience; homelessness; and an experience of time and space as compressed and fragmented within a world of images that increasingly undermine the dialectic of authenticity and universalism. Giroux suggests that border youth is condemned to *wander across, within or between multiple borders and spaces marked by excess, otherness, difference, and a dislocating notion of meaning and attention*. Critical pedagogy should address the shifting attitudes, representations and desires of such young people with the kind of shared language of resistance, hope and possibility, offered by post-industrial socialism (Little, 1998).

Attempts to engage border youth and others in SCEE and SCESD should acknowledge popular and street culture and the ways in which the young construct identities and gain power through conventional consumer behaviour and acts of resistance that celebrate pleasure and shatter conventional social codes. Such resistances may stem from hidden utopian desires that teachers can reveal, clarify and develop and as is the case with *No Logo*, such education of desire should enable pupils to reflect and act on the structural roots of their own subjectivities. Images and discourses of nature and the environment pervade the media and consumer culture and SCEE and SCESD should help pupils to understand their role in deepening or alleviating their alienation from nature. Postmodern pedagogy offers new challenges and opportunities but as we respond to these we also have to answer our critics.

Answering our critics

In recent years what some would term 'culture wars' have broken out in environmental education with a number of writers suggesting that SCEE, or education for the environment, has become a powerful 'slogan' or orthodoxy that should now be substantially reformed or retired (Jickling & Spork, 1998, Scott & Oulton, 1999, Scott, 2000, Walker, 1997). According to their analysis it is undermining teachers' confidence and efforts and thereby preventing environmental education from fulfilling its potential to hasten the transition to sustainable development. I will conclude this talk by summarising my reading of these critics' claims (C) and providing responses (R) in defence of SCEE. Other responses can be found elsewhere (eg. Fien, 2000)

- C1 SCEE has a priori commitments (to values, ideology, goals, theoretical frameworks, social agendas) that contradict its professed educational aims. It seeks to 'steer quite firmly' towards what pupils might (or should) be thinking and doing and how they ought to be learning, and is therefore deterministic. Its collectivist, emancipatory and utopian imperatives militate against autonomous learning. It reflects the values and predilections of activists more so than those of educators and risks narrowing or closing possibilities and perspectives.
- R1 SCEE is committed to social justice, democracy and sustainability whilst recognising that such values are discursively created and can have different meanings in theory and practice. In encouraging pupils to reflect and act on these meanings, and the technologies, and forms of social organisation, that can best deliver environmental well-being and sustainability, SCEE introduces elements of critical theory alongside mainstream theory. It sees as manipulative or deterministic those forms of education that

exclude critical ideas and suggests that together with the beliefs and strategies of activists these ideas have a valid place in the curriculum provided they are subject to rational analysis.

- C2 Education cannot be for something other than itself. It cannot be for the environment or sustainability. If it claims to be for something it becomes deterministic or programmatic.
- R2 When SCEE advocates education for the environment or sustainability it does not advocate a specific state of the environment or form of sustainable development. It is committed to the environmental well-being of all the world's people, and to forms of development that deliver ecological, economic, social, cultural and personal sustainability (universal human values or rights), but recognises that such values or rights will be realised in different ways in different contexts. Like education for democracy, citizenship or peace, education for the environment or sustainability means a critical process of exploring how values might be realised through appropriate social and environmental relations..
- C3 Process is everything. The only knowledge that matters is that which the learner brings to the classroom. The learner is the point of departure.
- R3 This is to confuse socially critical education with pupil centred or progressive education. SCEE uses the inquiry process to address the concerns of pupils and the community and this involves reflection and action on both academic and popular knowledge. SCEE would claim that without elements of critical theory pupils are unlikely to perceive environmental realities and alternatives with accuracy.
- C4 SCEE is utopian. It has no theories about how the sustainable society it desires might be realised or maintained and consequently no ideas for social action within schools or the community. (Some critics accept that SCEE has theories of change but suggest that such theories are confined to the macro level and are unable to deal with interpersonal and organisational change).
- R4 This claim shows a lack of awareness of the extensive literature on the environment and sustainability within the critical social sciences. Economists, political scientists, sociologists, critical educators and others advise politicians, activists and professionals on strategies for sustainable development. Particularly significant is the literature on community development and the 'greening' of educational institutions that pays attention to interpersonal and organisational change through critical action research.
- C5 Critical pedagogy seeks participation and emancipation. What is the learner does not wish to participate or to be emancipated? Does the learner's choice (autonomy) allow a rejection of critical pedagogy? Can she remain cognitively and emotionally uninvolved?
- R5 The reality is that some pupils are 'disinterested, disaffected or disappeared' in many conventional classrooms. The characteristics of critical pedagogy (see above) mean that it is more likely to engage and interest pupils and postmodern developments are likely to increase its appeal. A commitment to autonomy means that pupils should be able to refuse critical pedagogy's invitation to collective and critical dialogue liked to everyday life, but such a refusal is equivalent to refusal of the role of citizen and should be discouraged by all the educational means we have at our disposal to stimulate cognitive and emotional involvement.
- C6 Schools cannot accommodate the radical requirements of SCEE. Its content and process are too demanding. It causes frustration, undermines teacher confidence, and is doomed to failure.
- R6 Conservative reforming or restructuring of schooling in many parts of the world means that schools and teachers are generally less receptive to critical pedagogy. Teachers are being becoming more like technocrats, instrumental knowledge is gaining status, and the rhetoric of standards, vocational relevance and performance indicators precludes critical ideas. There are however contradictions that can be turned to advantage (eg. the introduction of citizenship education into the English national curriculum) and critical teachers can form alliances with workers' and citizens' groups seeking radical change. Schooling is inevitably contested and many teachers' claims to neutrality too often translate into support for an unsustainable status-quo.
- C7 SCEE is based on too simplistic a division between education about, from and for the environment and their different philosophical foundations. The three forms are complementary rather than contesting.

- R7 There are sound philosophical and political grounds for maintaining these labels whilst subjecting them to continuing review and revision. The three forms are complementary AND contesting. Without elements of critical social theory and pedagogy environmental education is unlikely to meet its socially transformative goals.
- C8 Schools, pupils and communities should decide the most appropriate approach to EE and EfS. We should welcome multiple approaches suited to diverse contexts, informed by local traditions, ideological persuasions, and practices. The relations of environmental and educational ideologies need to be rethought in order to reflect plural understandings in a way that does not privilege particular ways of bringing critical arguments to bear.
- R8 No school or community is an island and there are real limits to localism under info-capitalism. All teachers and pupils deserve the insights provided by critical theory and such a plea for localism and pluralism can be seen as a withdrawal from environmental and educational politics. Socially critical environmental educators are continually rethinking their theory and practice, as I have attempted to show, and critical theory's proven powers in ideology critique and social transformation suggest that it should be privileged alongside other ideas.

- Barry, J. (2000) *Environment and Social Theory*, Routledge, London
- Burbules, N. C. (2000) 'The Limits of Dialogue as a Critical Pedagogy' in Trifonas, P. (ed.) *Revolutionary Pedagogies, Cultural Politics, Instituting Education and the Discourse of Theory*, Routledge, New York, pp. 251 - 273
- Castells, M., Flecha, R., Freire, P., Giroux, H. A., Macedo, D. & Willis, P. (1999) *Critical Education in the New Information Age*, Rowman & Littlefield, London
- Castells, M. (2001) 'Information Technology and Global Capitalism' in Hutton, W. & Giddens, A. (eds.) *On the Edge: Living with Global Capitalism*, Vintage, London, pp. 52 - 74
- Dickens, P. (1992) *Society and Nature: Towards a Green Social Theory*, Harvester Wheatsheaf, London
- Dickens, P. (1996) *Reconstructing Nature, Alienation, Emancipation and the Division of Labour*, Routledge, London
- Eden, S. (1998) 'Environmental knowledge, uncertainty and the environment', *Progress in Human Geography*, 22/3, pp. 425 - 432
- Fien, J. (1993) *Education for the Environment, Critical Curriculum Theorising and Environmental Education*, Deakin University, Geelong
- Fien, J. (2000) 'Education for the Environment: a critique – an analysis', *Environmental Education Research*, 6/2, May, pp. 179 - 192
- Gadotti, (1996) *Pedagogy of Praxis, A Dialectical Philosophy of Education*, SUNY, New York
- Gibson, R. (1986) *Critical Theory and Education*, Hodder & Stoughton, London
- Giroux, H. (1999) 'Border Youth, Difference and Postmodern Education' in Castells et al, op. cit.
- Goldblatt, D. (1996) *Social Theory and the Environment*, Polity, Cambridge
- Gough, A. (1997) *Education and the Environment, Policy, Trends and the Problems of Marginalisation*, Australian Council for Educational Research, Melbourne
- Hart, R. A. (1997) *Children's Participation, the theory and practice of involving young people in community development and environmental care*, Earthscan, London
- Hartley, D. (1997) *Re-schooling Society*, Falmer, London
- Huckle, J. (1983) 'Environmental Education' in Huckle J. (ed.) *Geographical Education, reflection and action*, Oxford University Press, Oxford, pp.
- Huckle, J. (1988) *What We Consume, The Teachers Handbook*, WWF/Richmond Publishing, Richmond
- Huckle J. et al (1995) *Reaching Out, the Tutors' File*, World Wide Fund for Nature, Godalming
- Huckle J. & Sterling, S (eds.) (1996) *Education for Sustainability*, Earthscan, London
- Huckle, J. & Martin, A. (2001) *Environments in a Changing World*, Prentice Hall, London
- Jickling, B. & Spork, H. (1998) 'Education for the Environment: a critique', *Environmental Education Research*, 4/3, August, pp. 309 - 328
- Kincheloe, J. L. & Steinberg, S. R. (eds.) (1998) *Students as Researchers*, Routledge, London
- Klein, N. (2000) *No Logo*, Flamingo, London
- Little, A. (1998) *Post-industrial Socialism, Towards a new politics of welfare*, Routledge, London
- Lyon, D. (1999) *Postmodernity*, Open University Press, Buckingham
- MacNaghten, P. & Urry, J. (1998) *Contested Natures*, Sage, London
- Martell, L. (1994) *Ecology and Society*, Polity, Cambridge
- McGuigan, J. (1999) *Modernity and Postmodern Culture*, Open University Press, Buckingham
- Parker, S. (1997) *Reflective Teaching in the Postmodern World, a manifesto for education in postmodernity*, Open University Press, Buckingham
- Plant, M. (1998) *Education for the Environment, stimulating practice*, Peter Francis, Dereham

- Popkewitz, T. S & Fendler, L. (eds.) (1999) *Critical Theories in Education, Changing Terrains of Knowledge and Politics*, Routledge, New York
- Sardar, Z. (2000) 'A Science for all, not just for business', *New Statesman*, 7.2.00, pp. 30 - 31
- Scott, W. A. (2000) Review of Wals, 1999 op. cit., *Environmental Education Research*, 6/4, November, pp. 398 - 403
- Scott, W. A. & Oulton, C. (1999) 'Environmental Education: arguing the case for multiple approaches',
- Thompson, S. (1998) 'Postmodernism' in Lent, A. (ed.) *New Political Thought, An Introduction*, Lawrence & Wishart, London, pp. 143 - 162
- Walker, K. (1997) 'Challenging Critical Theory in Environmental Education', *Environmental Education Research*, 3/2, May, pp. 155 - 162
- Wals, A. E. J (ed.) (1999) *Environmental Education and Biodiversity*, National Research Centre for Nature Management, Ministry of Agriculture, Nature Management and Fisheries, Wageningen
- Wright, N. (1989) *Assessing Radical Education*, Open University Press, Milton Keynes
- Young, R. (1989) *A Critical Theory of Education, Habermas and Our Children's Futures*, Harvester Wheatsheaf, New York