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**Constructing Stories of Committed Educational Research and Environmental Education
Practice in the Post-Prefixed Analytic Moment**

by

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For Jan Laura and Nicole

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Abstract

As a researcher/educator [here termed, analytic worker] committed to the establishment and maintenance of a more healthy environment for all I am concerned in this case study of a collaborative action inquiry to contribute to the reflexive reconceptualisation of ways of engaging with the socio-ecological crisis.

The notion of a socio-ecological crisis draws our attention to the need to reflect on modernity, its ideals and the ways in which we attempt to realise them (Beck, 1992). The context of a more reflexive modernity and risk society is a useful starting point from which to begin to consider recent controversies about the status of scientific knowledge, social constructionism, nature and the role of education. This debate is revisited via a mobilisation of Stuart Hall's theorisation of articulation (reflexivity) and a connection to narrative and storytelling methodologies.

The research/inquiry has a *committed* and *reflexive* orientation and seeks to question or re-search with schoolteachers [eventually one schoolteacher: Suzanne] common conceptualisations of (i) 'good pedagogy' in environmental education and (ii) the enactment and encoding of educational research. The research starts for the initiator/facilitator from the position that post-prefixed discourses have, in the process of profoundly problematising what analytic work looks like, opened up new spaces in which an examination of educational knowledge production can be located. The research explores some of the problems and possibilities which emerge for particular forms of truth-telling and knowledge production under these conditions.

Within, alongside and beyond the collaborative work with teachers, the research took on another trajectory or form of expression that was labelled *my own research project*. While the focus of the research remained the same (that is (i) and (ii) above) the research became more self-referential. As a research initiator/facilitator and collaborator I became more concerned to further analyse my own role as a committed researcher concerned to tell particular truths about 'good pedagogy' in environmental education and the enactment and encoding of educational research. These two stories [in terms of both collaborative work with teachers/Suzanne and my own research project] are portrayed/disclosed in the pages of the text.

The collaborative research foregrounds aspects of the environment-related educational practice of Suzanne through her own narratives, and locates this educational practice within a wider discursive space of pedagogical and curriculum developments within environmental education. Here, the concern is with giving the right place to description (Wittgenstein, 1958 27e), which in turn can provide a place for the understanding of [environment-related] educational practice and educational research that I construct in this text [my own research project], and is the task of what I call non-representational 'theory' (Thrift, 1996) or relational thinking (Massey, Allen and Sarre, 1999). Such 'theory' is an attempt to reimagine the either/or constructions of binary thinking, and to recognise the important elements of association or interconnection which go into the construction of any identity and form of educational/research practice.

Thinking in terms of relations is employed and examined in this text in terms of the Enlightenment antinomy between 'nature' and 'society'/'culture', which marks a pervasive tension in the institutional configuration of scientific knowledge, including that of geography and environmental education. The aim is to find within social constructionism a conceptual space for 'nature' for the 'nonhuman', as a way of reflexively reconceptualising analytic work and educational engagement with the socio-ecological crisis. While philosophical scholarship and empirical research are frequently presented as discrete activities, the position adopted here is that both are essential to a project such as developing theories of environment-related pedagogical practice.

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Opening: a prologue and a postscript

The future will of course have to be struggled for. It cannot be willed into place. But nonetheless we still have to dream and to know in what direction to move.

(Hebdige, 1988)

Postmodernism presents itself as a 'historical complex' – complete with its neuroses and obsessions. And legions of therapists and counsellors are constantly at work on the personality disorders of the *Zeitgeist*.

(Spencer, 1997: 161)

The modern response to the ambiguity of language and life has been a pursuit of 'univocal discourse' and communication, a pursuit of precision and clarity.

(Smart, 1999: 5)

If we want, then, to try to 'glimpse' a 'non-binary world' then one of the most significant steps must be to rework our geographical imaginations.

(Massey, Allen and Sarre, 1999: 7)

I encourage you to venture forth from the groups with which you normally associate, put your comfortable, ready made conceptions of knowledge and learning on hold, and...reconsider the nature of knowing and learning and to think anew about the art and science of educational research and practice.

(Donmoyer, 1993: 7)

Intellectual controversy and uncertainty is the chronic condition of the post-modern world...Educational research, no less than any other academic disciplines, has in recent years been influenced by this wider discourse and the epistemological uncertainties it has produced. There has been a lively and sometimes agitated debate between the traditions within educational studies about its status and forms of inquiry...Any discipline which is not critically re-evaluating the very foundations of its work, and whether 'foundations' are any longer possible, is vulnerable to the charge of intellectual closure and ossification.

(Ranson, 1998: 528)

The enlightenment aura that seemed in an earlier epoch to surround and sanctify the gush of human utterance in written form melts away as 'research is viewed as the practice of writing and rewriting selves and the world.

(Usher, Bryant and Johnston, 1997: 212)

The deterioration of the global environment is one of the major problems facing humankind today.

(UNESCO, 1995)

At this stage in its history it would be difficult indeed to identify an issue of greater importance for humankind than its relationship with its environment. Evidence mounts daily to confirm that human action is affecting the environment in ways that are both unprecedented and unsustainable. Given that the consequences will have to be faced by the citizens of the early 21st century, clearly it would be irresponsible for education somehow to attempt to remain insulated from the issues that this state of affairs throws up.

(Bonnert and Elliott, 1999: 309)

Surely there are few commentators who would want to deny that the cultural turn in the social sciences and the humanities – including human geography – has paid enormous dividends... I think that we have to be careful not to lose that sense of *engagement with the emergent* which is so clearly a reason why the cultural turn has been so successful.

(Thrift, 2000: 1)

The typical manner of depicting the world in terms of a box called 'society' in interaction with a box 'labelled' environment not only makes little intuitive sense...but it also has just as little fundamental theoretical and historical justification.

(Harvey, 1996: 28)

I have started this text many times. *Writing* introductions, beginnings or openings are always tricky. So let me try to get the genre of this text right, or as right as it can be prior to the writing itself. In taking a *social constructionist* stance and writing these two stories of a committed researcher telling particular truths about 'good' pedagogy in environmental education and enacting and encoding educational research in the 'post-prefixed'¹ analytic moment (what Thrift, above, describes as an engagement with the emergent), central to my understanding of educational research 'is the idea of *professional discourse*': 'research feeds discourse, which aids practice and policy' (Bassey, 1999: 49). In this sense, I have tried to create a more dialogical and disclosive text. That is a text that performs or enacts more than represents the phenomenological aspects of 'doing educational research', a text less 'wedded to the notion of bringing back the 'data' and then re-presenting it (nicely packaged up)' (Thrift, 2000: 3), than about creating 'the scenes' of prolonged engagement that allow wider realms of sensate life to register, in an attempt to reach a wider audience. For many of us, taking a constructionist stance means, as a starting point, challenging the traditional objectivist and essentialist views of research and writing, which keep the world at a distance and see the world in binary terms: 'natural' and 'social'/'cultural'. I am also conscious of writing the text for an academic award.

The introductory quotations of each chapter are for me jottings, reminders, persuasive rhetoric, lines of flight on which to create new discourses - a purposeful stimulus, as a left educationist, to the research/writing task in hand within the clamour of academic and everyday life. The quotations are expressions of hope, a *critical [committed²]* intent, and invoke a sense of an ethics of possibility, which seems to me to be the only stance we can now take. They highlight for me two fundamental aspects of learning and knowing: the need to continually clarify what is important to me [to us] - we still have to value - that is purpose and vision; and the need to continually explicate current 'reality', to listen to ourselves and to others, human and nonhuman, and to recognise that things could be otherwise.

As a white middle-aged teacher educator 'qualified' in the disciplines of geography and education, concerned about what it means to do 'committed research' for the environment - the quotations demonstrate to me the dynamic and *generative* role of rhetoric³ in helping to re-envision and reconstruct lives. As Steve Fuller (1993) commented:

The power of the great philosophical theories of the twentieth century - Marxism, pragmatism, logical positivism, existentialism, and structuralism - lay not in the truth of their specific doctrines but in the ability of their procedural languages...to get people from quite different walks of life to engage in projects of mutual interest.

(p. xvi)

To an extent, this is what I think Giroux (1992: 10) means when he talks of moving from a language of critique to a language of possibility. Apple (1986) noted that the work of leftist educators is often written in a style that makes it inaccessible to practitioners and other sectors of the educational community, and Aronowitz and Giroux (1985) suggest that the left has become so embedded in the 'language of critique' that they have in many ways edited themselves out of policy debates. The quotations set out at the

beginning of the twenty-first century, within the kind of more reflexive societies that are now being reconfigured, *my* entry point for the kind of educational practice and questions I seek to address within this text.

committed, collaborative, reflexive⁴

The term critical as used here does not imply any direct allegiance to the Frankfurt School tradition of critical theory, though the focus on education's social purpose in terms of a commitment to social change, perhaps inevitably suggests a connection, at some prior point [at least] to Neo-Marxist theory. Instead 'I take the term 'critical' to mean an attitude towards research in which nothing is taken as necessarily 'given' (David Tripp, 1998: 37). A critical approach is a committed approach which generates a distinctly different framework with which one conducts research. One's ideology or frame of reference is intimately embedded in every aspect of the research endeavour. It influences the type of phenomena we choose to study, what we notice during the generation of data, and the way in which we analyse the findings. As a result, a distinctive characteristic of research is its 'openly ideological nature (Lather, 1986) and the necessity of reflexivity, of growing awareness of how researcher values permeate inquiry' (Lather, 1991: 2). That is, committed researchers make a commitment to become aware of, reflect upon, and articulate their ideological convictions within the context of their work.

Alcoff (1991 states,

The desire to find an absolute means [methodology] to avoid making errors comes perhaps...from a desire to...establish a privileged discursive position wherein one cannot be undermined or challenged...From such a position one's own location and positionality would not require constant interrogation and critical reflection; one would not have to constantly engage in this emotionally troublesome endeavour and would be immune from the interrogation of others. Such a desire for mastery and immunity must be resisted.

(p. 22)

Morwenna Griffiths (1998: 3) emphasises that committed research is about starting the process of educational research with a set of values that guide decisions about *what* is researched, and *how* and *why*. Using the words of David Tripp (1998):

I see a 'socially critical' approach to research as a matter of *problematizing research content and procedures in terms of what I see to be the ideal of a socially just form of inquiry*. Bringing the issue of social justice into research means shifting from only asking questions about the quality and appropriateness of matters internal to the research, to also asking questions that problematise processes in terms of *whose interests are being served and how*, and that problematise content in terms of *what substantive knowledge (of what and whom) used in and generated by the research, is accepted as true (by and for whom)?*

(p. 37, original emphasis)

There is clearly considerable variation in the types of research for social justice. Griffiths (1998) comments that a 'history of educational research which is concerned with social justice in Britain demonstrates that it is an approach which is neither new nor strange; though the emphasis changes, as does the terminology... While it is a continuous tradition, attention to social justice issues has gone in and out of academic fashion'

(p. 9). Today, [while] within the post-prefixed analytic moment new conditions and new political constellations are provoking new modes of struggle for justice, these struggles, generally within education, are still being played out in terms of individuals and communities that simply support entrenched society-nature, human-nonhuman divisions. I would like to extend the justice *commitment* to the 'nonhuman', to 'nature'. It is a matter of problematising research practices and content in terms of what I see to be the ideal of a 'relational ethics' (Sarah Whatmore, 1997).

Here the concern for educational research is the development of new understandings of everyday life that don't simply support entrenched society-nature, human-nonhuman divisions, but which seek to articulate the heterogeneous sociologies of life. This new hybridity recognises nature as 'an always already *inhabited* achievement of heterogeneous social encounters (Whatmore, 2000: 270). It is a position where we humans can no longer hide behind the binary categories that have so successfully shielded us from forms of corporeal responsibility to the non-human realm, but forces us to face up to a suddenly enlarged community that is no longer 'other'; a constituency which is very much bound up in the shaping of the 'business of [our] everyday living (*ibid.*).

The term 'collaborative' or 'participatory' research is generally reserved for research in which researchers are seeking to maximise participant involvement. 'Whatever else happens, one should deliberately set out to ensure that the situation and its outcomes are just for all participants. This is not simply a matter of seeing to it that no one is disadvantaged in or by the research, though this is important; it is more a matter of sharing the work and its benefits' (Tripp, 1998: 42). One would expect any committed approach to research to be highly participatory and collaborative.

This is a conceptualisation of research/inquiry as reflexive engagement to construct possibilities for change in people's lives. Today, doing analytic work means being faced not only with questions about how to generate projects worthy of social inquiry, how to engage with particular educational settings; analytic workers must also confront issues of (to name a few more common ones) related to the purpose of their work, the rationality that they use in developing their own presuppositions and methods, their personal life histories, the power relationships between themselves and the people they work with, and the eventual reporting of their experiences to a wider audience. These questions of 'power and method' (Gitlin, 1994) are central to critiques of qualitative research per se but are voiced especially forcefully when it is committed research relating in some way to specific political issues.

It is a form of analytic practice in which the truthfulness and validity of knowledge claims does not involve setting aside contextual presuppositions (getting clear of our historical 'situatedness'), and where the issues of ends and means in the creation of 'truth' come together most critically. But as Ladwig and Gore (1994) claim, declaring oneself a critical or 'activist researcher' (p. 3), what in this text I call 'committed research' (Griffiths, 1998), in the context of an overwhelmingly conservative academy does not require of academics that they do much more than signify their difference in this way. It is as if being an activist/committed

academic was the overriding analytical determinant (p. 237). If academics are to be successful in their advocacy of committed research a more expansive discussion of issues of methodology may be necessary in strengthening the discursive power of any activist research agenda advanced from within the academy and aimed at persuading others.

Popkewitz and Brennan (1997) have argued that questioning processes of knowledge production in educational domains generates a number of tensions for all forms of analytic work, for truth telling, insofar as education is a domain 'centrally concerned with training in truth production' (p. 313). Here I take up Popkewitz's and Brennan's (1997) call for a 'rigorous questioning of the *will to truth*' embodied in environmental education work and educational research (p. 313). A more reflexive modernity profoundly problematises all forms of truth telling in education.

entry point: a relational ethics

In order to proceed, I need here to point out my dislike of the theoretical term 'modernity' (and by implication, the notions of 'postmodernity', 'hyper-modernity' etc). 'Modernity' is of course, a word and concept with a long and chequered history, signifying many things, which has allowed writers from Hegel onwards to write 'the stuff of saga, a vast saga of radical rupture, fatal destiny, irreversible good or bad fortune (Latour, 1993: 48). It is part of a series of *grand* stories⁵ about the history and geography of Western cultures that wants to build systematic accounts of the world which aspire to rigorous standards of exactness in terms of two ontological pre-givens - 'Nature' and 'Society' - and which wants to understand the totality of life in terms of those accounts, as stories that add up. Osborne (1995) suggests that it has three main meanings: as an historically specific quality of social consciousness; as a category of historical periodisation; and as an incomplete historical project. Modernity is not an easy idea to criticise because it is so diffuse, but in so far as modernity can be treated as a single idea, then the cost of totalising history, geography and culture is too high.

The dislike is part of a wider concern for the possibility of producing particular kinds of theory that are different from the understanding of *grand theory* (Thrift, 1996, 1999) that is more traditionally held, and which do not ontologically separate 'nature' in the raw from the 'natures' of social representation, what Nigel Thrift (1996, 1999) calls non-representational 'theory' (a convergence of the work of Wittgenstein and Heidegger).

'If nature at the dawn of the twenty-first century is resolutely social, this does not mean that the modern dualism between 'nature' and 'society' no longer retains a hold on our imagination' (Castree and Braun, 1998: 33). Indeed, the Enlightenment antinomy between 'nature' and 'society' continues to mark a pervasive tension in the institutional configuration of scientific knowledges and authority, including much of the social sciences and geography. It is also expressed in public concern of the 'death of nature', and now as often as before, 'nature' is seen as a refuge - a 'pure' place to which one travels in order to escape

from society. This echoes the binary mode of thinking common in much geography education and environmental education practice.

By way of opening it also has to be said that this text has been a long time coming and much of it re-written several times. In part, the difficulty has been in trying to work across the disciplines of social and cultural theory, feminist theory, post-Hegelian continental philosophy (poststructuralism, postmodernism), sociology of scientific knowledge (SSK), actor-network theory (ANT), modern environmentalism, and various writers (such as Bruno Latour, John Shotter, and a body of work based in particular on the convergence between Wittgenstein and Heidegger) that deny the efficacy of representational models of the world and are concerned instead with actions and interactions, what Thrift (1996) has called 'theories of practice' or 'non representational theories', though all encountered in the main through the discipline of human geography and geography/environmental education.

The concern in actively engaging with theories and theorists from other parts of academe was not merely to import new ideas into education but to problematise my own analytic practice. In particular I am concerned with two issues: (i) those surrounding the social construction of knowledges, which are of significance not only in terms of epistemology, they also relate to how as educationists we draw the boundaries between 'nature' and 'society'; and (ii) those surrounding how nature and society are today being reconfigured.

In part, it is because I have been trying to forge a particular kind of 'reflexive' theory/writing – but which is not entirely familiar to me. It is an engagement that is always situated, and attempts to discern a 'non-binary world' (a theme that runs through the text). It is a form of practice that tries to make more 'relational' the very positioning of the academic in relation to the world. I have tried to move away from the kind of empirical/analytic abstract theory which washes away content by ignoring human context, leaving only empty panoptic visions (Thrift, 1996: xii). This non-representational 'theory' – 'theory' is in scare quotes since one of the purposes of non-representational theory is precisely to undo what we think of as theory (Thrift, 1999: 297) - becomes:

a practical means of going on rather than something concerned with enabling us to see, contemplatively, the supposedly true nature of what something is... This is, then a very modest view of the role of theory which is intent on seeking relational rather than representational understandings; we are not seeking, as already developed individuals, to discover what something is, but different ways in which we might relate ourselves to our surroundings... In other words we are seeking to develop disclosive skills.

(Thrift, 1999: 304, original emphasis)

Such an analytic engagement, it seems to me, will be a more performative sense of engagement, intended to identify:

Those forces or potencies where origins and outcomes cannot be specified independently of the open and necessarily incomplete series of their actualisation. Such is their multiplicity that it can never be reduced to a set of discrete elements or to the different parts of a closed or organic whole.

(Rajchman, 1998: 116)

This, in turn, requires valuing and practising some related disclosive skills more than we do now – again, these are not entirely familiar to me.

My broad commitment is to what is now being labelled in the discipline of geography as a *relational materialism*, which depends upon conceiving the world as associational (Thrift, 1999: 317). *Thinking relationally* is, in part, an attempt to reimagine the either/or constructions of binary thinking (where the only relations are ones of exclusion) and to recognise the important elements of association/interconnection which go into the construction of any knowledge and identity (Massey, Allen and Sarre; 1999: 12). The theoretical construct of inside versus outside has been strong in Western culture, is being questioned now, and is certainly questioned here. The broad ethical approach of ‘thinking in terms of relations’⁶ is examined and employed in this text, in the analysis of those most profound of Western boundaries between ‘nature’ and ‘society’/‘culture’ and in the implications of this for environmental education; and in the discussion of the nature of power and analytic practice.

This is not a matter of setting out fatally to undermine social constructionism. Instead, it points to some of the aporias that follow in the wake of the ‘linguistic turn’ upon which so much of social constructionism in the social sciences and education until recently has putatively rested. Bracketing off the non-linguistic, non-social, nonhuman entities as the constructions of linguistic, social intertextual activity is not unproblematic. Indeed, underlying the rhetoric of much social constructionism is a tacit promise, that what we social constructionists do is reveal the ‘real’ processes by which such and such is socially constructed, and that this is an improvement on our analytic predecessors. They failed to take language seriously. We take it very seriously. Now this is a caricature. Nevertheless, it does touch upon something significant, namely the tendency to treat the emergence of social constructionism in intellectualist/progressive terms, and that the traditions that social constructionism attempts to overhaul was an intellectual mistake. And yet, such stories themselves are constructed. What happens if, in the spirit of social constructionism, we introduce another story? (Michael, 1996: 2) My primary concern is to find within social constructionism a conceptual space for ‘nature’ for the ‘nonhuman’, the ‘non-social’, of engaging with social constructionism on its own terms, of simultaneously problematising and accepting social constructionism [in a particular form], and to consider how the nonhuman impacts upon the production of [educational] knowledge and identity. ‘The dilemma is one which is not resolvable (Billig et al, 1988); rather it is a basis for breaking down some of the strictures imposed by social constructionism on doing ‘good’ research (Michael, 1996: 35).

Environment, sustainability, education and research

For researchers, topics for research typically mesh intimately with their professional and social experiences and commitments. Something that has intrigued and concerned me for a long time as an educationist is the notion of the possibility of social change, that is, how research and teaching can develop the capacity for social change. I began my research with two long-standing convictions: that my own culture had produced rather a poor design for sustainable⁷ living, and that education/schooling had a role to play in bringing about such change within society.

Working in the early 1990s with higher education colleagues who were active and self declared critical action researchers meant work conversations about the process and 'social commitment' of research were common and more often than not enframed within explorations of the relationships between knowledge, research, education, collaboration, change and even occasionally activism. Or at least, that was the way I understood the conversations as they unfolded. I was particularly interested in discussions that both challenged the uncritical glorification of knowledge generated through practitioner research, and using the words of Kenneth Zeichner (1993), that stressed the need for practitioner research to:

take a harder look than is sometimes the case at the purposes toward which it is directed, including the extent of the connection between...research...and the struggle for greater social, economic and political justice.

(p. 200)

Tony Ghaye captured for me, neatly at the time, the context for initiating the research. His words still ring true today:

to focus upon workplace improvement is a conscious, often dilemma-strewn act orchestrated by people who try to learn from the past, respond appropriately to contemporary events and have a vision through education of a better world.

(1994: x)

Similarly, the more recent words of Morwenna Griffiths (1998) resonate with a commonly expressed understanding of research through these work-based conversations:

the role of an educational researcher is always to work in specific circumstances *with* rather than *on* or even *for* the people who inhabit them.

(1998: 111, original emphasis)

John Smyth (1999) has labelled such research 'voiced research' (p. 74). Voiced research 'is a relatively new way of characterising the bringing into the picture of perspectives previously excluded, muted, or silenced by dominant structures and discourses' (*ibid.*). And as Grunet (1990; 4) put it, the promise of voiced or committed research is anchored in local knowledge in the face of objective, normative, hegemonic forms of knowledge.

What I took from these discussions was a renewed appreciation of the heterogeneity of qualitative educational research strategies, a refined awareness of my own commitments as an educationalist, namely an epistemological commitment to a more democratised research agenda, and as Michael Bonnett and John Elliott (1999) argue above, the belief that 'it would be irresponsible for education somehow to attempt to remain isolated from the issues' (p. 309) of the environment.

The effect of human activity on the environment is rightly, I believe, a matter of continuing concern both in general and for education in particular. Indeed, the explosion of discourse on ecological decline and humanity's relations with nature add a greater sense of urgency for understanding the significance of

ecological issues in our lives and of the role of education and educational research for improving contemporary macro-micro/local-global⁸ social and environmental arrangements.

Today, whether it is on behalf of Amazon trees, the arctic tundra, genetics or the human body, the matter of 'nature' is on the agenda as never before (Braun and Castree, 1998: xi). Growing awareness of the manifestation of developmental and other social problems in the biophysical environment has been accompanied by an understanding of the complex and varied nature of socio-ecological issues (Janse van Rensburg, 1994; 3). Global in reach and of unrivalled dynamism, such issues have been commonly described as a 'crisis', and predictably led to calls for changes to improve the situation. As the twenty-first century progresses, environment-development issues are likely to have an increasing impact on both local communities and society at large. The problem is how to respond.

Over the last decade or so Governments and non-governmental organisations (NGOs) have stated repeatedly that education is a key policy instrument if we are to make the transition to sustainable modes of living. Growing public and governmental concern over the stability of ecological systems and sustainability of existing social practices has brought a new focus to environmental education – 'education for sustainability' or 'education for sustainable development'. The term has only achieved currency during the 1990s and the debate, as with sustainable development, is still quite young. Support for such an approach, however, is to be found in many international and national policy documents (WCED, 1987; IUCN/UNEP/WWF, 1991; UNCED, 1992; UNESCO, 1995; BGPSD, 1995) as well as environmental educators working in the formal and informal sectors, and the National Curriculum 2000 (DfEE/QCA, 1999). The concern is not only immediate environmental improvement but also sustainable development in the long term (Tilbury and Turner, 1997: 124).

Eureta Janse van Rensburg (1994) has pointed out that 'many of these international policy documents were expressing a fairly conventional view of environmental education and what it needs to accomplish. They exemplify an instrumental, behaviourist, technocratic and uncritical orientation to environmental education' (p. 5):

The resolution...of global change issues depends largely upon *behaviour* changes in humans brought about by *proper* education and that environmental education is hence a major *vehicle* for imparting global change *instruction*...The assumptions of scientism, technicism, rationalism, and individualism are conspicuous.

(p. 5-6, original emphasis)

These proposed solutions to the risks of modernity are often based on the very assumptions which underpin the issues they seek to address.

And like education, 'the scientific research paradigm has tended to dominate the relatively young and evolving body of environmental education research' (Palmer, 1998: 102). This is hardly surprising given the academic background of early and influential researchers in the field in the late 1970s and 1980s. It was

in the United States that the development of an environmental education research agenda gained momentum. 'Boosted by an Environmental Education Act, the United States initiated and led the thrust of environmental education research in the 1980s' (Tilbury and Walford, 1996: 52). Specifically, researchers at the University of Southern Illinois, all trained scientists, played a very significant part in identifying research priorities in the field and in determining the course of environmental education developments throughout the decade, supported by UNESCO-UNEP's International Environmental Education Programme (IIEP). These developments had significant impact on European/UK, Asian and Australian research (Robottom and Hart, 1993a). 'Many studies of this period were concerned with the identification, prediction and control of the variables that are believed to be the critical cognitive and affective determinants of responsible environmental behaviour' (Palmer, 1998: 103). 'The language, methods and approach to studies reflect the role played by, and the value attached to, scientific research' (Tilbury and Walford, 1996:52).

Two decades after the positivist/empiricist paradigm steered the definition and development of a research base, research in environmental education is a very lively contemporary issue (Williams, 1996: 9). The recent reviews of Fien and Hillcoat (1996), Tilbury and Walford (1996) stand along side those of Gerber (1996), Greenall Gough (1993), Gough (1987, 1991), Hart (1993), Janse van Rensburg (1994), Payne (1995), Posch (1993), and Robottom and Hart, (1993a and b). They reflect a drive in educational research and the social sciences, on the one hand, and environmental, geography and science education on the other, to develop alternative research paradigms to the positivist tradition (Williams, 1996: 9).

I attempted to enact the aims of the research project in recognition of the significance of Janse van Rensburg's recommendations:

Some of the conventional wisdom's put up here for re-thinking are that the vantage points of the scientist or educator are central positions from which to solve the socio-ecological crisis; and the transformatory role of the 'purely practical' insights of simplistically defined practitioners or communities.

We need to consider how researchers can best *clarify* and *embrace*, rather than manage, facilitate or empower (others to take part in) processes of social transformation. Reflection on the history, nature and underlying assumptions of research might release research from being no more than a prestigious enterprise which, in form if not necessarily in reality, directs the management of processes of ostensible change (reform).

(Janse van Rensburg, 1994: 17, original emphasis)

And as she goes on to say:

Those researchers/educators who are committed to the establishment and/or maintenance of a healthy environment for all might want to contribute to the clarification of modernistic delusions and the reflexive reconceptualisation of ways of engaging with the environment crisis. We do not need more research to merely inform reform towards more of the same'.

(Janse van Rensburg, 1994: 17)

These arguments reflect Moscovici's (1976) ideas about functional and genetic models of social influence.

Whilst few people would probably doubt the urgency and importance of learning to live in more sustainable ways, environmental education⁹ holds nowhere near the priority position in formal schooling around the world that this urgency and importance would suggest (Palmer, 1998: ix). And like education, 'the view that research results can be 'applied' to improve situations, e.g. to develop better behaviour, policies or curricula, is part of a network of instrumental, utilitarian and uncritical assumptions about research, knowledge, education and social change' (Janse van Rensburg, 1996: 68). Research is often regarded as having a key role to play in such change, though this is despite sobering historical analyses that reveal the contrary (Popkewitz, 1981, 1984, 1991).

The simplest and most honest way I can introduce this text¹⁰, this research, therefore, is to say that the original idea for the project, to work collaboratively *with* teachers on questions to do with the environment and education - was drawn out of my commitment to the environment; my concern with education's social purpose in terms of a commitment to social change more generally; the increasing 'global' concern, both government and public, about social inequalities, the vulnerability of ecosystems and sustainability; an increasingly internationally defined environmental education where the concern is for social transformation towards more sustainable societies (Tilbury, 1994); and the beginnings of an on-going engagement with epistemological and ontological shifts in post-prefixed reality, thought and practice.

environmental concern

There is nothing new about environmental concern. The roots of modern Western conservationism and environmentalism, and attention to the problems about an unthinking exploitation of the earth's environments by human beings, are at least 200 years old (Harre *et al*, 1999: 13). European-based environmentalism first took shape in the mid-18th century, arising as a new expression of the old tradition of the search for utopia. In other words, the origins of environmentalism are to be found in the Age of Enlightenment. Richard Grove (1992) suggests that the rise of western environmentalism in the 1860s was pre-dated by policies enacted in colonial contexts in the eighteenth century. As Grove (1992) argues the contemporary discourse about the threat to the global ecosystem has to be seen in a long tradition.

What is new is the transformation of human consciousness on a large-scale, and the global attention, perception and affirmation of the global approach. This has been brought about by new social, ecological and political developments and movements over the past decades, and the role of the new worldwide media and communication systems that have emerged, making possible the beginnings of an environmental lingua franca or 'greenspeak', and a vast increase in worldwide information on environment and development. These social, ecological and political developments and movements have found expression in the new lingua franca, supported by not simply more information but different information, which has made possible a political force for global environment-development strategies. The Rio Summit was one of the first high points of this ecological-cultural fusion in the 1990s. 'The cultural-historical change of the meaning of natural process and human history, which is so essential for environmental discourse, cannot be understood, detached from the developments of their semiotic systems that are particular cultural systems

themselves. They not only carry and present but also create these meanings, bringing new realities into view' (Harre *et al.*, 1999: 20). Today notions of environment and nature and their relationship to contemporary and future societies and the geopolitics of 'developed' versus 'developing' areas, are subjects of considerable global interest, concern and debate, in the political arena and within society in general. However, there is no overall agreement about what the problems might be, the degree of the problems, their causes or their potential solutions (Adams, 1997: 278),

There are underlying disagreements over how problems are defined, their degree of seriousness, who is responsible for solving them, and how amenable they are to solution. These disagreements run deep; they are based on different moral principles, different values, different assumptions about how the world operates, and they are found not only at the international level, where cultural diversity is to be expected, but at all levels...

(Mills, 1982: 240)

new analytic landscape: new spaces of knowledge production

During the last two decades, the field of educational and social research has undergone a great deal of intellectual and methodological turmoil. As Fiske and Schweder (1986) noted,

There was a time, not so long ago, when the very idea of rationality was equated with the results and findings of positive (i.e. objective) science...[Today, there are a] wide range of alternative positions concerning science and the subjectivity/objectivity that one might credibly adopt in a post-positivist world.

(p. 16-17, in Goodman, 1998: 50)

As such, I locate this text within recent critiques of 'modernism'. Whatever we call these critiques/discourses – feminist, postmodernist, poststructuralist, posttraditionalist – this body of work has played a significant role in rethinking analytic/intellectual practice within the social sciences. Education as part of the social science tradition, has not been unaffected by this intense debate and the challenge to the commanding position of the earlier quasi-axiomatic positivist-empiricist approaches to research and knowledge formation.

Without for the moment getting hung up by terminology and definitions, I shall refer to such critiques collectively as 'post-prefixed'¹¹ discourses, what in human geography has been termed the 'cultural turn'; a term which is becoming more commonly used in geography/environmental education. 'Social constructionism' is similarly a popular, catch-all phrase that is used to describe a variety of very different approaches to science, knowledge and nature. Such critiques seek to understand and disclose the ways in which 'knowledge', 'research' and 'nature' [the environments and mind-bodies¹² we inhabit] are socially fabricated or constituted at different levels, through multiple relations, by various actors and as the effects of different forms of social power.

When I first began to get interested in the prospects of 'doing some research' I was drawn to poststructuralist and postmodernist writers such as Derrida, Foucault and Lyotard, as well as another tradition which, though different in some respects, shares and indeed prefigures the anti-essentialist, anti-representationalist stance of poststructuralism and postmodernism. Specifically, this is the work of Ludwig

Wittgenstein and Martin Heidegger. The engagement with post-prefixed theory began to cast the research project with a particular ontological-cum-epistemological stance. Central to this stance is an insistence on the *contextualised* and *indeterminate* nature of all forms of knowledge. As Norman Denzin (1997) emphasised, when the foundations of knowledge are themselves open to contextualisation and indeterminacy, researchers have a problem with representation, legitimation and praxis (p. 3).

If there was a 'metanarrative' that united all of this work in a common cause, then as Ian Stronach and Maggie Maclure (1997: 6) suggest, it might be entitled 'the resistance to closure'. Whatever their differences, each of these terms is often understood to carry a possibility to *open* in a productive or generative sense discourses, regimes, policies, theories or practices which tend to the inertia of closure and certainty (Stronach and Maclure, 1997: 6).

Stronach and Maclure also point out (1997:7-9) that educational engagements with 'postmodernism', or what I have called 'post-prefixed' discourses, exhibit the same kind of anxiety and the same kinds of attempts to contain or circumscribe its dangers, that have recurred in every other field or discipline that has courted its embrace. Engagements which attempt to use its productive possibilities for opening, while fending off its dangerous ones – the ones that might open (on to) the abyss.

There is today a maze of research traditions and cultures of inquiry that blanket the analytic educational landscape. This new multi-cultural terrain is complex and contradictory, enfolding within its leaky borders multiple paradigms and epistemologies. While part of this development in education was the result of a sustained focus on the different, relative merits of quantitative and qualitative research, more recent discussion (for example, Gitlin, 1994; Donmoyer, 1993, 1996; Denzin, 1997; Jipson and Paley, 1997; Griffiths, 1998, Smyth and Shacklock, 1998) has been occasioned by a more spirited body of activist or committed work. All of this work has been concerned to demarcate the epistemological, methodological and political distance between itself and more orthodox theory and practice, with its embodiment of what might be termed the modernist Western cosmology, which includes such elements as individualism, cognitivism, realism, narrative linearity and intellectual progressivism.

As Anderson (1989) noted some years ago, 'the current situation [doing educational research], although chaotic, is also full of opportunity' (p. 250). In particular it has provided researchers with what Geertz (1983) referred to as 'blurred genres' in which social inquirers are free to borrow from across disciplines and utilise various frames of reference for their work.

Michael Bassey (1999: 1) stated that while educational research is in turmoil, it is a time of opportunity and a time for action. For Hodge (1995) a characteristic of this current state of affairs is that:

there is no consensus about what research can do, what it can't do, what methods it can and should adopt, how it can or should be written up, or what criteria should be used to judge its success. This lack of agreement has resulted in and itself derives from the educational

research community becoming increasingly fragmented. Views even differ about the extent to which this fragmentation is desirable or inevitable.

(p. 3)

Jean Rudduck (1998: 3) argues, that today, what may look like a recurrence of nagging self-doubt, is in fact a justifiable and potentially constructive attempt to re-examine the terms, structures, procedures, directions, relationships and impact of educational research in the light of fundamental changes in aspirations for education and its system of governance.

These post-prefixed discourses have, in the process of problematising what analytic work looks like, opened up new spaces in which an examination of the processes of intellectual knowledge production can be located (Kelly, Hickey and Tinning, 2000: 111). Such spaces are not points of exteriority, not a free space on which to stand to tell the difference, but a space within which – we may be able to make a difference. They recognise and work within the necessary *failure* of epistemology's-methodology's hope for certainty, objectivity, clarity, illumination and generality. For such analytic practice, disappointment of certainty is both a choice and an inevitability, something to be both resigned and committed to (Stronach and Maclure, 1997: 4-5), a strategic praxical act of interruption/disruption of the methodological-epistemological will to certainty and clarity of vision.

New research questions and challenges have arisen from the expansion of the modes of knowledge, and new intellectual issues have arisen both from this complexity and fragmentation; and from the social, cultural, political and technological changes of the present. And as forms of this newer kind of research practice continue to develop for multiple reasons, inside and outside the grids of defined research categories, the sphere of scholarly inquiry has become an extraordinarily animated site for a diverse and creative analytic production concerned to situate human inquiry in a more vast epistemological space (Janice Jipson and Nicholas Paley, 1997: 3).

Anthropologist George Marcus (2000) suggests that the 'theoretical imaginaries' which characterised the beginnings of the 'cultural turn' in the social sciences have given way to more grounded and applied work in a second-wave of interdisciplinary research (p.13). Concerns about the theoreticist, journalistic, culturalist, pretentious tendencies of the currents which constitute the cultural turn are certainly present. Yet at the same time its widespread critical currency at the centre of debate in a range of analytic landscapes is unquestionable.

That I have chosen to start this text emphasising these political upheavals reveals my sympathies and affiliations with the voices of a growing number of research workers, educational thinkers and social/cultural theorists alike, who have begun to establish a powerful, differently-constituted set of imperatives for reconstructing the co-ordinates of analytic practice in the post-prefixed moment. Taken individually and collectively I find these voices compelling and significant. Currently, questions about the nature of educational research, its status, purposes and ethics are the subject of lively debate in the

educational research community, in Britain as elsewhere. There is now room in the academy to do much more than simply argue against the old assumed enemy of positivist/empiricist research. The time is right, I think, to address, with greater specificity, alternative methodologies for committed or activist educational research in relation to some of the most persistent problems in our schools, within society, and in the case here, non-human nature. For PhD students, and others, this situation is likely to present a very stimulating but serious challenge. It is part of the context of this text, and equally this text is a contribution to that debate. However, it is one thing to have such an affiliation and commitment, it is quite another thing to realise this intention within the actual constraints of the research process.

new analytic practice: writing research

One of the more obvious instances of the problematising of analytic/intellectual work and recent shifts in analytic practice is that of a diminished alignment to the mechanics of traditional research writing. The imperatives of the discursive, objective tradition and the concern with research grammar, analytic form and the procedural rules of hypothesis, validity, replicability and generalisability are now being reinscribed in favour of a broader attention to indeterminate realities of producing knowledge. This interest is reflected in the exploration of forms of analytic work that avoid the pre-established stabilisations of unitary thesis, discursive assertion and linear construction in favour of arrangements that function as expressions unrelated to 'transcendent ends' (Deleuze and Guattari, 1983: 50). Such analytic velocities suggest particularity and difference, not sequence and destiny; their expressions are everyday and practical, not foundational and eternal, their concern is with the 'practical means of going on' (Back, 1998: 290) not to discover what something is.

The objective tradition displays knowledge from a singular, exclusionary and authoritative position, and obscures the existence of [their own] interpretation. Representation often seems to be the task of revealing a completed thing rather than the creation of something - and an attendant transformation of the writer. Instead of subordinating lived experience to the 'tyranny of reason' or the 'consolation of order' (Jackson, 1989: 16), we have to find ways of presenting work which conveys its 'ongoingness' and 'livingness' (Whitehead, 1993: 69). Central to the newer forms of 'messy text' (Denzin, 1997: xvii-xviii) is a more diversified, polyphonous display of knowledge, where as Patti Lather (1991) has suggested:

Data might be better conceived as the material for telling a story where the challenge becomes to generate a polyvalent database that is used to *vivify* interpretation as opposed to 'support' or 'prove'. Turning the text into a display and interaction among perspectives and presenting material rich enough to bear re-analysis in different ways bring the reader into the analysis via a dispersive impulse which fragments univocal authority.

(p. 91)

This vitality is lost if the research data must be organised in inappropriate ways in order to be 'acceptable' (Lomax and Parker, 1995: 304). Educationalists should attempt to shape their work in terms of its necessities rather than perceived ideas as to what they ought to or ought not to be doing (Geertz, 1988: 166-67).

Another shift in analytic practice involves the research content. Determining that which is worth knowing and, thus, of being represented and analysed in the research process has been traditionally located within domains of prediction, recurrence and endurance. The worthiness of such knowledge has often been defined by its ability to replicate perceived regularities in the social world. Categories of frequency, representativeness and generalisability have had an obscuring effect on the determination of what is worth knowing. This has tended to exclude categories of content that other educators have found significant: the particular, incidental, and emergent occurrences of lived experience and the significance of everyday life (Bateson, 1995). Conventional analytic perspectives generally disallow the creation of knowledges that are situated, relational and hybrid. Attention to the potential of these kinds of determinations may open educational research to differently 'authorised' agendas.

The 'scientific message' is thus composed of many conventions of textual performance and the audience is as much convinced by the conventions of textual performance as it is by the 'facts' that are represented through these means (Back, 1998: 286). Such a careless simplification of the communication process presents a clear danger for all researchers, whose texts ought to be more self-aware. No textual staging can ever be innocent. How as researchers we choose to write about others has profound implications, not just for how readable the text is, but also how the people the text portrays are 'read' and understood (Sparkes, 1996: 12). In recent years increased attention has been given to the process of writing as it transports the researcher from the 'context of discovery' to the 'context of presentation' (Richardson, 1992). The product of the research and the way that it is written is today under intense scrutiny.

Of course, the conventions and norms as to how writing should be structured have been, and are continually changing. In general, the history of writing show a continuous process of experimentation, in an attempt to do justice to the always frustrating relationship between the linear sequence of words on a page, the infinite complexities of experience and the desire to elucidate a wider significance from particular events (Winter, 1988: 25).

A post-prefixed approach to the representation of research, environments and environment-related educational practice in a complex chaotic world requires that in developing our texts we provide some sense of where we are as authors, and draw attention to its own structures and properties as a generator of meaning and significance; that is draw attention to the text's status as an artefact in order to pose questions about the relationship between representation and reality. I try to make more explicit the conditions of production of my text, aware of the messiness, the often awkward, confusing untidiness of making one's way in research, the messy quality of learning/knowledge production in general (Ely, Vinz, Downing and Anzul, 1997: 8). The aim here is to display or disclose the process of the interaction between self and others, self and context, in order to present more reflexive stories; to present not simply 'what I know' but also 'how I know it'. Ironically, while many educational researchers have rejected a positivist conception of objectivity in research methodology, they have not rejected its influence over their writing style.

There is a need, however, to strike a balance between the extremes of unreflexive research accounts and narcissism. Latour (1988) is helpful here. He distinguishes between two forms of reflexivity. The first he calls *metareflexivity*. 'This is characterised by the underpinning assumption that readers too readily believe texts and it is a problem of note if they fail to comprehend the constructed nature of these texts' (Michael, 1996: 38), and the assumption that a text about the way the text is produced is somehow more reflexive than a text with an actual subject. In contrast, *infrareflexivity* attempts to avoid, as opposed to encourage, not being believed. Of course, this also applies to metareflexivity to an extent: after all the textual strategies employed to force the reader to problematise the accounts of science and social science, nevertheless encourage us to believe in the soundness of reflexivity. In other words, as scientific and social scientific objects are de-reified, reflexivity becomes reified. In contrast, for Latour [and for this author], the more [infra-] reflexive we are, then the more realist we become: for to make realist claims and to go on to the side of the 'known' is exactly what is needed to play the game of critical or committed engagement, of persuasion, of in sum, politics. Like Latour (1988) and Bourdieu (1990) I believe that too many of these exercises in 'reflexivity' [metareflexivity] are simply a means of retreating from the one special responsibility that I do think academics have, which is to communicate with people and multiply the communicative resources that people have available to them.

As Laurel Richardson (1994) observes:

We are freer to present our texts in a variety of forms to diverse audiences...self-reflexivity unmasks complex political/ideological agendas hidden in our writing. Truth claims are less easily validated now, desires to speak 'for' others are suspect. The greater freedom to experiment with textual form, however, does not guarantee a better product.

(p. 523)

In writing this text I have also relied on the insight offered by Ladwig and Gore (1994) that no matter what I write, readers will make up their own minds about all of the issues raised herein. 'What this common-sense disclaimer signals is that I firmly believe the political effects of any text cannot be determined simply by its encoding, however skilled, sympathetic, or even wise (p. 227). While this disclaimer acknowledges the significance of the 'literary turn' in the social sciences, which has offered us fresh insights into the textual dimensions of educational inquiry/research, we must seek to turn these insights into useful analytic tools, whereby we can think again about the way in which we express and disseminate our ideas and findings. Developing new ways of writing will help educational researchers find new ways of intervening within public life and may enable us to reach wider audiences in a more effective way. One of our challenges with regard to educational research is to come to terms with how we as writers-cum-researchers fit within a text and reach larger audiences.

For the reasons stated above the successive chapters are not presented as a 'standard' thesis - literature review, methodology, findings, conclusion etc. Every attempt to write, in translating into words the encompassing complexity of social life, provokes a linguistic dilemma. Social life, as Ed Soja describes, 'is stubbornly simultaneous, but language dictates a sequential succession, a linear flow of sentential

statements bound by the impossibility of two words occupying the same precise space on the page' (1989: 2). What I write will inevitably be successive - but the sequential structure of the text does not imply a simple chronology of the scholarly and rational development of themes, ideas and practices. It simply was [is] not like that. Combining a prologue and a postscript¹³ therefore, is one way to introduce (and conclude) this text – fore-words that are also after-words - one attempt to break out of the temporal prisonhouse of the text.

For this reason I would also prefer that the chapters of the text are seen as a collection of reiterated openings that resist the impulse to impose a smooth trajectory (Stronach and Maclure, 1997: 1-2) offering a rational progression towards the closure of a definitive answer. They are better seen as a set of 'thematic essays' where I problematise what analytic work looks like, and attempt to open up new spaces in which to consider contemporary educational practice in terms of the notion of a socio-ecological 'crisis'¹⁴.

Further, if this opening is a prologue, it is not meant to be what Ian Stronach and Maggie Maclure (1997: 1) describe as a departure lounge for an intellectual journey which will be neatly mapped out in the chapters that follow. Though the chapters are purposeful, the text is not one of those where all the loose threads are neatly tied together at the end. Further, if this opening is also a postscript, I have to tell you now that neither is it 'finished off' in the final chapter.

research focus

The research project has a committed, collaborative and reflexive orientation in that it seeks to question or 're-search' common conceptualisations of environmental education and educational research. The original accepted research proposal (by the University Research Committee) stated that the aims of the research were to:

- question or re-search in collaboration with teachers' common conceptualisations of environmental education and how they are enacted in the classroom, and to consider the possibilities for the improvement of this practice, specifically in terms of education for sustainability
- question or re-search with teachers the nature of collaborative research as a social practice. Here the concern is with the nature of the actual collaboration - with what does or can go on between people, with how educators practice and sustain inquiry/research in a collaborative fashion on a common task.

These were the broad aims or parameters within which I intended to negotiate a collaborative research project between teachers and myself, where their meanings and facticity for each individual were matters to be accomplished within our interaction, within 'our work'.

However, over time the research questions changed and became:

1. how through collaboration with teachers as a 'committed' researcher can I tell particular truths about 'good' pedagogy in environmental education?

This question was concerned with a number of pressing issues:

- (i) what the aims of environmental education should be
- (ii) how to make environmental education more effective to achieve these aims
- (iii) the implications of pursuing these aims for pedagogy, the curriculum as a whole and the school as an institution.

(Bonnett and Elliott, 1999: 309)

2. how do committed academics enact and encode research?

I want to make something clear. These questions are a retrospective reconstruction of what it was that I was doing. Put another way, this is what I was examining but its meaning did not more fully emerge until 'writing-up' this text.

The intention in this text is to explore some of the problems and possibilities that emerge for particular forms of educational truth telling under post-prefixed conditions. While to an extent I examine these processes at a general level, these problems and possibilities are illustrated in this research project via an engagement with the above questions. And like Griffiths (1998) the concern having acknowledged the power relations (between researcher and researched, writer and reader of research accounts) immanent within research is to focus directly on [social] justice issues within the research.

In this endeavour, my purposes are usefully served by a mobilisation of Hall's theorisation of articulation [reflexivity], the reflexive modernisation thesis of Beck (1992, 1995), Giddens (1991, 1994b and c) and Beck, Giddens and Lash (1994), and connects with issues concerning narrative and storytelling methodologies (as developed in the work of e.g. Winter, 1988; Clandinin and Connelly, 1995, 1996, 1998; Dadds, 1995; Thomas, 1995).

Stuart Hall's (1985, 1996) theorisation of 'articulation' enables me to explore processes of knowledge production in terms of the conditions that enable particular versions of what constitutes good environmental education and committed research *for* the environment to function as true. Hall's (1985, 1996) theorisation of articulation allows me to focus on certain epistemological aspects of the debate over what constitutes good pedagogy and educational research. Further aspects of the contemporary conditions of existence of these articulations, particularly those 'scientific' articulations that emerge as dominant in the recent history of debates about environmental education and educational research, can be analysed by considering the institutional location of these processes of expert knowledge production. Articulations of good pedagogy in environmental education and educational research are constructed by various experts in 'centres of

expertise' (such as universities, schools, government departments). What is it about the contemporary conditions of existence of these articulations which enables them function as powerful truths in and of environmental education and educational research?

Theories of reflexive modernisation, which construct contemporary settings and the institutionalised 'activities of expertise' (Rose and Miller, 1992) in relation to debates about modernity and postmodernity, are useful in understanding how the differing claims to tell the truth about environmental education pedagogy and educational research (co)exist in institutional settings. They profoundly problematise the quest for constructing 'better' knowledge about educational research and what constitutes good pedagogy in environmental education; indeed about what constitutes educational truth in general. In this sense, the text is not to be taken as imparting unproblematic knowledge about reality, but as raising questions about [both] that knowledge and reality, through the unresolved plurality of its meanings.

These questions and the concerns that stand behind them are not new; they have a very long history. What has changed is the context in which we ask them today and our reasons for asking them. No one text can provide answers to all of the questions surrounding what are and should be the relations between politics and research, what is necessary and possible in making this connection. In fact, it is probable, that such answers, if they exist, can only be found in the crucible of practice, as we work them out in our daily lives (Fraser, 1989; 3). In this sense, and using the words of the feminist philosopher Nancy Fraser, this text, 'evinces an accent of urgency that bespeaks engagement' (Fraser, 1989: 3). It interrupts common sense notions about the artificial separation that we might usually make among the professional, political and the personal when we think about the practices that organise the world of the educational researcher – and takes seriously questions of committed research. How we think about and do environmental education research will be altered, to the extent that we take such questions seriously.

research expressions

Within, alongside, and beyond the collaboration with teachers the research took on another trajectory or form of *expression*, that I had not explicitly planned for and I initially labelled *my own analytic project*. The specific focus of the research project did not change as such, namely questions 1 and 2 above. What did change was my concern with the way as a committed researcher I placed myself into the research and placed the research into wider relations of power.

I was in search of a group with whom to collaborate. In attempting to initiate and develop the research I became aware that I was very dependent on the interest and commitment of teachers – quite simply, no takers, no research project. The search for a group did become a formidable practical constraint and contributed to the altered nature of the research as formulated in the accepted research proposal. In particular, it changed the number of schools and teachers involved. I should point out here that I started the project with three primary school teachers from a single school [Suzanne, Francis and Hazel], but shortly after worked with one, Suzanne (see chapter 4 for a more detailed account of this situation). All through the

early development of the research project there was hovering in the background, to begin with like a nagging doubt, another *expression* to the research. Initially it took the form of two questions. What would I do if this proposed collaborative research project did not get under way? What would I do if this proposed collaborative research project did not develop productively/creatively?

In a sense, these two different expressions to the research, the collaboration with Suzanne and 'my own project' were the material outcomes of the continued tension between facilitator initiative and research project ownership: basically, 'whose research is this?' It could be argued that the way I responded to this initiator tension/dilemma significantly compromised the original research proposal and resulted in an under-realised collaboration with the teachers. Making a different choice would have inevitably led to the crafting of another research story and, perhaps, a better one - I don't know. I would certainly do things differently now. But this, in a way, is the central point. In one sense, I have to be judged on the story I chose to tell. However, in another sense, acknowledging its limitations is an essential aspect of ongoing reflexive critical research and practice. The 'front-endedness' (Anderson, 1989) of critical social science and the considerable forces arraigned against it, requires constant vigilance and critique of our own individual and corporate endeavours.

The use of the term *expression* is taken from Peter Reason (1988), where expression is a mode of reflecting on and processing experience, of allowing the meaning of experience to become manifest. Reason argues that meaning is part and parcel of all experience, although it may be so interwoven with that experience that it is hidden: it needs to be discovered, created, or made manifest, and communicated (p.80). Although Reason (1988) seems to be describing meaning in a somewhat essentialist sense, whereas I would emphasise its plurality and indeterminacy, importantly, he was claiming that the expression of experience, and thus inquiry into meaning, is an important aspect of research ignored by orthodox science (p.80). Here, I use the term to illustrate the way in which what I saw initially as a 'practical constraint', made manifest, forced out, created another expression to the research project, that otherwise, may not have been actualised within the constraints of 'doing a PhD'.

The words below, though written later towards the end of the collaboration are used to describe my understanding of the dilemma I faced, both during the early development of the research project, and at various times through the collaboration with Suzanne. This retrospective writing - 'what can I see now, that I didn't before' - point to both a problem of articulation as well as emphasis:

Because of the emphasis on collaboration within the accepted research proposal, and my predisposition for collaboration, for various reasons, I feel uneasy writing about such thoughts now - I feel that it is necessary to 'get across' this facilitator/researcher boundary, this self/other boundary, this empirical/theoretical boundary. But why do I want to do this? Is it just because of the initial problem of getting schoolteachers involved? Is it because of the way in which the collaboration developed - working only with Suzanne? Is it because the research is for a PhD? Is it because I have *my own* questions? (What I initially labelled 'my own project'.) But my questions do change the

emphasis of the research – now I am not even stumbling towards collaboration. How do I justify this? It seems I have struggled with this for a long time without answers.

I knew there were other things I wanted to ask, other conversations I wanted to have, other things I was thinking about – in terms of environmental education and collaborative research. I didn't know explicitly what the questions and conversations were when I started the research, they took shape over time and continue to take shape now, but during the development of the project - I knew, as such, I wasn't having them. And I began to know it wouldn't matter how long I stayed at the school (and possibly any other school for that matter), I wouldn't necessarily have them. This is not a criticism of Suzanne, Francis or Hazel. These questions are mine – my concerns – and however I have tried to approach them, articulate them or 'disguise' them (even suppress them at times) – they did not seem to have significance for 'the others'.

These thoughts embody, in an almost literal sense, the engagement with boundaries that are being addressed within much of the research literature. They restate the oppositional dilemmas that are rehearsed in much practitioner research itself - between theory and practice, between 'self' and 'other', between the personal and the professional, between 'insider' and 'outsider', between facilitator and collaborator, between academic and practitioner, between the objective language of science and the subjective dialects of practice and everyday experience - and the other binary oppositions that structure Western thinking about research.

As such, it probably isn't the lack of opportunities to ask these questions, think these thoughts across self/other [collaborator] boundaries, but my handling of the boundary itself between facilitator/researcher, self/other, empirical/theoretical. This is a relatively unexplored space for me.

This lingering imperative to resolve or dissolve what I saw as a 'contradiction' in the early stages, the boundary between facilitator/researcher, self/other, empirical/theoretical is attached to the significance of conventional research arrangements. Particularly important here, I think, are the conceptions of being rational, of coherence and validity. How can my thesis be rational, coherent and valid if it is about a collaborative research project that is as much about my own theorising as it is about a research collaboration concerned to generate 'data' about possible improvements within environmental education. Even worse, how could I 'write it up'; worse still, how can it be research?

(Research Journal, July 1996)

In trying to find ways of operating within and through this 'contradiction' I began to question the significance of the original aims of the collaborative research, including researching 'the other' at all. In returning and reconsidering the recommendations of Janse van Rensburg (1994) and her emphasis on the reflexivity of contemporary analytic work – which continues to challenge all of us as educators to be as clear as possible about the, moral, social, and political consequences of our practices and discourses – the research became [perhaps inevitably] more expressively self referential. In saying this, I do not mean self referential in a purely individualistic sense.

Now I would state that research is a messy business, something you would not always gather from many of the 'research methods' texts that deal with the subject. But, even getting behind published accounts of the process of research through conversations with colleagues and starting from the vantage point that such accounts of fieldwork are invariably cleansed of the 'private' goings-on between researcher and researched

does not necessarily alert you to the kinds of difficulties and complexities which can (and do) arise when researchers attempt to do collaborative and critical research and 'immerse' themselves in other people's lives.

I would also say, using the words of John Smyth and Geoffrey Shacklock (1998) that the research became an attempt to:

tell the story [*stories*] about the intersection of the critical research perspective and the particular circumstances of the research context, as they occur in the actual experience of doing critically-oriented research...It is grounded in the primacy of the reflexive moment in critical forms of research.

(p. 1)

and that such accounts

We believe...provide the 'personal' dimension that links the theoretical discourse of socially critical research and its methodological imperative to the particular research act. These portrayals are an explicit recognition of the impact of the researcher on the intentions, processes and outcomes of the research.

(p. 1)

Putting it another way, rather than [cynically]¹⁵ theorising/writing over the voices of the researched, what is or isn't 'good' pedagogy in environmental education or collaborative research today, I began to recognise the need for further analysis of my specific role as a committed researcher, both in the particular context of a primary school, and as a participant in theoretical construction. It is in this sense that the research became more reflexive [self-referential]. Reflexivity is a continuing mode of self-analysis and political awareness.

I would also have to say that this attempt to be a collaborator as an initial 'outsider' to the setting was a new experience and stretched my ability, as well as my faith in collaborative and committed research, from the start. As recorded in my journal:

I have entered this setting with no previous experience of 'collaborative research'. Any confidence I initially had soon disappeared when I began to realise the difficulties of doing such research in the classrooms of teachers who were not colleagues, nor friends, who were not compelled to cooperate and do research *with* me – or is it do it *my* way. Important question: would Suzanne, Hazel and Francis have initiated this kind of research themselves? On all counts, the answer is a rather deafening 'almost definitely not'. And I have so much more to gain from the research. Next questions: where do I go from here with my collaborative and critical research? To what end do critical educators theorise? A major dilemma to start with.

(Research journal, December 1994)

If I am honest I question whether I adequately heeded the 'warning signals' – the loss of Francis and Hazel, as well as my own concerns as outlined above; and whether this was matched by my ability to 'deliver' the fragility of the collaborative and critical possibilities.

I 'went along' with the two forms of expression to the research, doing both, tending to see them [initially] in contradictory terms, while questioning how I could 'resolve' or justify this contradiction. In a lame

response to colleagues, graduate students and others attempting to do committed research - they are presented in the pages that follow, where I try to clear up (for the moment) some of the important questions of ethics, methods and theory. For the purposes of analysis and textual representation, I do to an extent, synthetically disentangle these different expressions of the two research stories [of a committed researcher telling particular truths about 'good pedagogy' in environmental education and enacting and encoding educational research] (see chapter 4). I understand them now as oscillations or pulses within the research process - equally important - and both part of my own changing analytic practice.

I would claim that my research concerns are consistent with Ian Robottom's (1996: i) call for environmental educators to theorise about their own practices and professional contexts. Robottom provides an appropriate cue for what is to follow. As Robottom states, philosophical/theoretical research continues to make significant contributions to environmental education - so that practice is not static but is informed by a responsive educational and environmental theory. Only now I would reconceptualise my position and this theorising, and define its exposition in a more situated and embodied way, through the words of Michel Foucault:

...the problematisations through which being offers itself to be, necessarily, thought - and the practices on the basis of which these problematisations are formed.

(1984: 11)

Notes

1. Over the last twenty years or so the social sciences have witnessed the gradual emergence of a number of alternative approaches to the study of human experience and practices. These approaches have appeared under a variety of rubrics, such as 'poststructuralism', 'deconstruction', 'postmodernism', 'discourse analysis', 'posttraditionalism'. What many of these approaches have in common is what is now often referred to as 'social constructionism'. Social constructionism can be thought of as a theoretical orientation which to a greater or lesser degree underpins all of these newer approaches, which are currently offering radical and critical alternatives within the social sciences. Social constructionism can be characterised by its critical stance towards taken-for-granted knowledge, its historical and cultural specificity, the understanding that knowledge is sustained by social practices, and that knowledge and social action go together. These renounce systematic or grand theory in favour of 'practical theory' and the unfinalisable nature of knowledge and dialogue. The term post-prefixed refers to such approaches and discourses.
2. The term 'committed' is taken from Griffiths (1998) *Educational Research for Social Justice*. I should emphasise that like Griffiths I prefer the term committed to critical because my notion of commitment is influenced by post-prefixed discourses.
3. In its common usage 'rhetoric' is often associated with insincere oratory or sloganeering. However, philosophically and historically this notion has another meaning. Here it is defined as the art of persuasion or effective communication, connected with speaking or writing with propriety, elegance and force (Back, 1998: 286).
4. It should be noted from the outset that the concept of reflexivity is by no means a conclusive one within the critical or interpretive traditions. It embodies a complex set of problems associated with the researchers position in relation to the status of knowledge and truth. My interpretation of reflexivity is more readily matched with that of post-prefixed discourses and in particular feminist discourses than with other traditions. It is one of the critical differences between committed research and orthodox research. The primary source of knowing and thus the primary 'instrument' of research in the former is the people involved within the inquiry, and method is a

secondary expression of this (though this is not a reason for ignoring method); whereas for the latter, method is primary and the subjects are subordinate to it. Reflexivity is a kind of understanding in which the person trying to understand the phenomenal world they are investigating examines the way in which their developing understanding changes them and their relation, not only to the phenomenal world they are involved within and their knowledge of it, but also to how they are involved within and understanding the phenomenal world.

Reflexivity is the attempt to interrogate the lives, the contexts and the circumstances of the participants, against the background of the broader social, political and economic forces operating to shape those lives and experiences. Ruth Behar (1993, 1996) puts it this way: 'the exposure of the self who is also a spectator has to take us somewhere we couldn't otherwise get to. It has to be essential to the argument, not a decorative flourish, not exposure for its own sake' (1996: 13).

5. I need to provide some sense of my theoretical dislike of grand theory. To do this I quite at some length the work of Nigel Thrift (1996, 1999). These dislikes all point towards the possibility of producing an alternative to them – non-representational 'theory'. The term 'theory' is in scare quotes since one of the purposes of non-representational theory is precisely to undo what we think of as theory. First, such thinking tends to produce a logocentric (the reliance on fixed almost a priori 'transcendental' meanings) presence, which then becomes the precondition and confirmation of further thinking. Second, grand theories like 'modernity' do not recognise their own cultural particularity, and therefore very often simply reproduce Euro-American cultural stories. The idea of 'modernity' depends upon a geopolitical vision of an elite western core, which is propelled away from the mundane history/geography/culture of the rest of the world. These western cultural stories are highly questionable. Third, cultural space within time becomes a continuous succession of the new of which notions like postmodernity are, in part, only an extension, since they accommodate any form of hesitancy about modernity by in effect declaring modernity anew in the very act of declaring difference. Thus postmodernity is accorded the status of being the latest stage in a master logic of modern historical development, notwithstanding all the obligatory homilies paid to the critique of development. Fourth, grand theory by its very nature tends to downgrade the 'everyday life of individuals and communities and their social practices to residual pockets of resistance. Fifth, it becomes too easy to relate a system of theoretical frames to its 'appropriate' scale. Grand theoretical categories are 'big' and human practices count for little except as the raw material of the categorical aggregate. Further, it can come to seem that 'big' effects within such theory must have 'big' causes.
6. Such a term is immediately redundant – as if there could be a non-relational ethics. By this term I mean an ethics that does not exist ahead of time in a set of principles or laws, but only comes into existence 'in' the relations in which its influence operates.
7. Ecological sustainability is a contested construct. Theoretical and operational articulations of sustainability do vary and Redclift (1987) suggests that the construct is surrounded by contradictions. Sustainability is considered in more detail in chapter 5. In using the terms 'sustainable' and 'nature' [below], I recognise that they are both a kind of 'bottom-line' consideration (Malcolm Plant, 1998: 36) in terms of human and planetary well-being. They are quite simply, part of one of the most important debates of our time.
8. Making the micro-macro distinction seems to have been an eternal problem within the social sciences, and is still common, even though it is neither empirically observable nor theoretically sensible (Anthony Giddens, 1984). The latest variant is the 'local' and the 'global'. Yet as Bruno Latour (1993) puts it, 'the words 'local' and 'global' offer points of view on *networks* that are by nature neither local nor global but are more or less long and more or less connected. Latour is emphasising the significance of binary oppositions to our way of thinking - we define the local only by contrast with what we think we have to attribute to the global, and vice versa...in the middle there is nothing thinkable - no collective, no network, no mediation, all conceptual resources are accumulated at the extremes' (p. 122).
9. I continue to use the term environmental education because it remains familiar terminology to many people including teachers. It also draws attention to an element of education that has evolved over the last four decades. While I support the basic tenets of education for sustainability, the term is only beginning to take on widespread use.
10. La Capra (1983) suggests that although the text metaphor involves a certain linguistic inflation, its value is in allowing us to understand the problems involved in taking 'reality' or 'context' as unproblematic. It makes the researcher/ inquirer reflect critically on his/her practices, that for too long have masqueraded as an unproblematic description of reality, narrated by an author whose presence is masked by the rhetoric of objective absence.
11. I use the term 'post-prefixed' discourses in an inclusive sense. I also use terms such as 'poststructuralist' and 'feminist' when I emphasise the genealogy of the idea.
12. I do not wish to imply any mind-body duality here. The mind-body's presence is a site and pretext for debates about representation and gender, about history and culture, and about theory and its vanishing point or referent, Billinger, J. (1993: 203).
13. This idea is taken from Ed Soja, *Postmodern Geographies*, London: Verso, 1989.
14. 'Crisis' is, perhaps, the most symptomatic root metaphor of contemporary times. I use the term here in recognition of the way it has become normalised within many contemporary debates about the 'condition of the environment'.
15. The word 'cynically' is used here in connection with the sect founded by Antisthenes – which scorned worldly things – i.e. an attitude that is asocial.

The construction of knowledge, nature and educational practice in a more reflexive modernity

Much of the impetus behind personal stories is moral. Education is seen correctly as a way to reawaken ethical and aesthetic sensitivities that, increasingly, have been purged from the scientific discourse of too many educators... There is much to commend in this position. Indeed, any approach that evacuates the aesthetic, the personal, and the ethical from our activities as educators is not about education at all.

(Apple, 1996: xiii)

The question is not whether we will write the lives of people - as social scientists that is what we do - but *how* and for *whom*. We choose how we write, and the choices we make do make a difference to ourselves, to social science and to the people we write about. Writing matters - theoretically and practically.

(Richardson, 1991: 9)

In principle, the notion of reflexivity recognises that texts do not simply and transparently report an independent order of reality. Rather the texts themselves are implicated in the work of reality-construction.

(Atkinson, 1990: 7)

People are anxious about the future, about the world they are leaving for their children. They see, with a profound understanding quite missing from national political life, the growing crisis of humankind's impact on the natural environment, as the simultaneous growth of material consumption and population generates inexorably greater pollution and resource degradation. They witness poverty, famine, and conflict in distant places and know that we cannot disclaim responsibility. They see the fabric of British society tearing under the strain of inequality and the glorification of me-first materialism.

(Jacobs, 1996: 1)

The discourse surrounding environment and development is not a neutral, convergent discourse, but one reflecting both divergent spatial and historical experiences and differing interpretations of those experiences. To talk of large scale destruction of the environment, holes in the ozone layer, global warming, acid deposition, species loss, to consider the total amount of land devoted to agriculture or covered by forest and to calculate the rate at which these are disappearing, to talk of resources and to measure the rate at which stocks are being depleted, is to invoke complex conceptual frameworks negotiated and sustained by practices of inquiry which are themselves sustained by institutions of research, communication and administration, which are in turn sustained by political and economic institutions and practices of different kinds at local, national and global levels.

(Gare, 1995: 73)

To the extent that postmodernism challenges conventional assumptions about knowledge, morality and subjectivity, it raises fundamental questions about essential elements of modern environmental educational thought and practice.

(Gilbert, 1992: 56)

'Education for sustainability' promotes not only immediate environmental improvement, but also calls for the promotion of *sustainable lifestyles* in the long term. 'Education for sustainability differs significantly from the apolitical, naturalist and scientific work which was carried out under the environmental education banner in the 1970s and 1980s'

(Tilbury, 1997b: 107)

My narrative aim in this chapter is to set up the primary context for the discussion in future chapters. I draw threads between the past, the not so distant past and the present, to trace the *flows of extraction* that have moved me farther and farther away from authoritative claims to know the world as it really is, as I write about nature, science/research, knowledge, geography/environmental education and change within societies.

origin stories

There are various textual strategies one can use. I could attempt to narrate the history or part history of the development of geography/environmental education and of the discipline of geography and in so doing excavate the context within which the importance of the social construction of knowledge has developed; at the same time pointing out, that the term and theory of 'social constructionsim' is not that commonly used within geography/environmental education. This would highlight my analytic work and engagement with such ideas within the social sciences. This narration would reflect the disparate sources upon which 'social constructionist' or 'cultural' geographies have drawn and suggest that geography came late onto the postprefixed scene. Peet (1998:196) claims that while poststructural theories were developing into a 'full-blown' postmodernism in the 1970s and early 1980s, human geography was still preoccupied with Marxism, humanism and various spin-offs from the critique of structuralism, such as structuration theory. The main route of diffusion of poststructural ideas into Anglo-American geography passed through Marxism, rather than directly through geographical readings of the original works. At the same time, the years that saw the spreading influence of poststructural ideas were also noticeable for the growth of a feminist movement in and around the discipline. With such sentences I begin to neatly and seamlessly fulfil the typical requirement of academic writing, of demarcating the history and development of one's field, but at least emphasising what a broad spectrum of sources social constructionsim draws upon, its hybridity.

I could also point to other genealogies. I might identify such bodies of literature as the philosophy and history of science (e.g. Popper, 1965, 1972; Kuhn, 1962, 1970; Feyerabend, 1978) which show us that science is not the value-free enterprise we once believed, but that empirical observation is through and through theory-laden. I could point to feminist discourses which provide us with accounts that reveal the contingency and situatedness of phenomena that we modern Westerners supposedly see as absolutes – whether nature, the self, knowledge (Haraway, 1991; Harding, 1993; Katz, 1998). I might claim allegiance to another social constructionist tradition (Actor Network Theory), that manifested in the sociologies of knowledge and scientific knowledge which show us how knowledge of the everyday world and of nature is constructed through processes of social interaction, the mobilisation of disparate rhetorical/representational resources and carefully contrived practices (Latour and Woolgar, 1979; Knorr-Cetina, 1981, 1983; Hacking, 1983; Latour, 1987, 1993, Haraway, 1992). And, of course, I do all of these to an extent, in this chapter and other chapters that follow.

As such, it might seem a trifle futile to attempt to generate some simple origin story for one's intellectual [social constructionist] position, that tacks oneself on to the tail-end of academic traditions or movements, that seeks out one's various and disparate precursors, forebears and ancestors. This is, in part, because such origin stories are themselves constructions and need to be treated with appropriate circumspection (Ashmore, in Michael, 1996; 40) lest they begin to read like discovery accounts. Discovery accounts in constituting particular events as points at which the 'new' emerged serve the immediate concerns of the person claiming the discovery or the retrospective self-discovery of a discovery. Likewise, for a social constructionist to point to the 'discoverers' of 'feminism', 'poststructuralism' and 'postmodernism' and to

align oneself with them, that is to trace out an analytic lineage, is to ignore the local legitimatory function that such histories and origin stories serve. Such tradition-construction, while in a sense inevitable - both for legitimation purposes and to guide¹ the reader with the textual and analytic background which they might subsequently critically scrutinise - tends to reproduce an intellectualist account of the historical trajectory of which one's work is a part. An alternative would be, in the act of writing origin stories, one might try to articulate, in however contingent a way, the criteria that guides one's intellectual opportunism and political instrumentalities.

research stories and stagings²

I have found it helpful to think of research as a practice of receiving and telling stories, and as both a process and a product. Narrativity links the idea of authorship to that of agency - the researcher as an active teller of plausible tales of construction, and not simply as conventional conceit would have it - a passive witness and reporter of events.

David Lodge (1990) observes that narrative is one of the fundamental sense-making operations of the mind, and would appear to be both peculiar to and universal throughout humanity (p. 141). Narrative is the primary way through which humans organise their experiences into temporally meaningful episodes (Polkinghorne, 1992: 25). Storytelling and narrative discourse are important aspects of everyone's life, helping us to understand and interpret experience; they are both a mode of reasoning and a mode of representation. Although a life is not a narrative, people make sense of their lives and the lives of others through narrative constructions. People can apprehend the world narratively and people can tell about the world narratively.

When we write science and social science, whether we recognise it or not, we write a narrative and create some kind of narrative meaning. Both depend upon narrative structure and devices, although that structure and those devices are frequently masked by a scientific frame, which is itself a metanarrative (Lyotard, 1979). As Knoespel (1991; in Gough, 1993: 607) writes:

Narrative theory has challenged literacy critics to recognise not only the various strategies used to configure particular texts within the literacy canon, but to realise how forms of discourse in the natural and social sciences are themselves ordered as narratives. In effect narrative theory invites us to think of all discourse as taking the form of a story.

Even the shape of the conventional research report or thesis reveals a narratively driven subtext: theory (literature review) is the past or the (researcher's) cause for the present study (the hypothesis being tested), which will lead to the future - findings and implications (for the researcher, the researched and science). Narrative structures, therefore, are preoperative regardless of whether one is writing primarily in the narrative or logico-scientific mode.

Environmental education is considered by Noel Gough (1993) as story-telling practices, and he argues that 'the characteristic discourses of much environmental education rarely encompass the narrative complexities

that are needed in order to make the problems of human interrelationships with environments intelligible, and conceptualise postmodern scientific understandings of 'nature' and 'reality' (p. 607).

In fact, environmental education has privileged the modernist scientific discourse which claims to have access to the way things 'really' are. Much education about environmental issues is based on the assumption that understanding these circumstances 'objectively' is important in encouraging people to respond appropriately to such issues. 'In short, the story-telling practices commonly adopted by environmental educators reflect what Harding (1986) calls, the longing for the one true story that has been the psychic motor for [modern] Western science' (Gough, 1993: 609). As Gough (1993) suggests, 'there can be little doubt that the narrative strategies of modern science have helped to raise our awareness of the nature and extent of numerous environmental problems. But these problems may themselves have resulted from modern science's construction of stories in which the story-maker or -teller is 'detached' from the earth, in which subject and object, 'culture' and 'nature', are categorically distinct' (p. 610).

This 'fundamental' sense making characteristic, therefore, seems a worthwhile candidate for educationalists continued attention. Richard Bernstein (1991: 31-32) reminds us, that recently, many writers including Jacques Derrida, Jean-Francois Lyotard, Alasdair MacIntyre, Paul Ricoeur, Richard Rorty and Charles Taylor have written about the central and problematic role of narratives for 'philosophic' and social inquiry. Given the unavoidability of narrative within the sciences and education, and given how human values, sensibilities, and ambiguities continuously reassert themselves in writing, we are propelled into taking seriously the relevance of narrative in the socio-cultural enterprise.

Narrative and storytelling methodologies are becoming more widely used in educational research. Indeed, Smyth (1999) argues that 'teaching is an oral and storied culture – a feature which has yet to be properly acknowledged by existing research approaches' (p. 73). Telling stories allows authors to demonstrate the importance and influence of cultural settings and contingency on individual development and provides a rich context for the exploration of ideas.

In these challenging times for analytic workers we must look to different ways of communicating with each other about educational development. Alternative ways of representing/presenting data collected about professional identity, development and experience such as narratives and storytelling have much potential to socially locate and make accessible the author's thinking, and for bringing theory and practice together in a powerful fusion to discover anew what is significant in people's lives and its connection to teaching and learning.

This text, as stated in chapter 1 is about two stories of education – of a committed researcher telling particular truths about 'good' pedagogy in environmental education and of enacting and encoding educational research. The stories are complex for several reasons. First, each story is connected to other stories [see below], they are intertextual. Second, within the temporal limitations of writing, whenever

possible the two are written 'simultaneously'; third, each story is simultaneously part of a wider social reality.

There are four other stories. One is of science, with a vocabulary of scientific method, rationality, objectivity and generalisation. A second is one of cultural practices, subjectivity, particularity, and difference. To talk about itself, the second story uses words like 'contingency', 'contextuality' 'situatedness', 'positionality', 'embodiedness', 'perspectival knowledges', 'situated realism', 'social constructionism'; to talk about the other story it uses names like 'empiricism', 'positivism', 'scientific methodism', 'technical-rationality' and 'objective realism' [what some call 'entity realism']. There is often a sub-plot to these two stories. In providing encouragement to pluralism and contingency the second story runs the risk of being accused of an *anything-goes* relativism, of ethical and political paralysis, even nihilism - that is, within the metanarrative of the limits of liberal-democratic tolerance. Each of these two stories contains an irony. People who subscribe to one of these two stories tend not to understand anyone else preferring the other. This is not just an intellectual or aesthetic disagreement, it is a difference in entire world views. In saying this, I recognise that these worldviews tend not to be consistently enacted. Stories change, and have been changing recently.

The third story is about the perceived role of education (in particular pedagogical practices) and academic disciplines/expertise in the contemporary world; a world often characterised as dynamic and rapidly changing. There are elements of the contemporary world that evoke intense debate within the social sciences and education. One is the social-cultural condition of the contemporary itself - whether we call it 'late modern', 'late capitalist', 'postmodern' or some other appellation; another is humanity's relations to 'nature', increasingly described in terms of a global socio-ecological 'crisis'. The debates have things in common. Both debates are built around the intellectual and institutional authority of modernity and theoretical frameworks which have privileged the economics of our livelihoods; permitted only specular and implicitly male models of the world and its discovery; tended to the neo-Kantian, in that they gave precedence to an *a priori* system of categorisation, essentialised the self, nature and morality, and insufficiently problematised representation and degraded practices. They both involve efforts to understand the culture of modern western civilisation and living and how it has come to its present state.

The deterioration of the global environment has challenged our beliefs in science and technology as intellectual and institutionalised forms of modernity. As David Demeritt (1998) comments:

Modern science and its technical creations have become ubiquitous, indeed indispensable, if also largely taken for granted aspects of everyday life – at least in the industrialised world. Yet despite this success, because of it in fact, the sciences are met with increasing public unease and scepticism. Assurances [from science]... are no longer sufficient to ease public concern about toxic chemicals, nuclear contamination, and other environmental 'side effects' of industrial society.

(p. 173)

Public unease and scepticism about the sciences is a characteristic of what Ulrich Beck (1992) calls an emergent 'risk society'. Whereas previously industrial society was organised around the application of scientific knowledge for the production and [limited] distribution of wealth, now according to Beck (1992: 19-20), the defining feature of contemporary western society is the distribution and management of 'risks' and 'hazards' such as global warming that result 'from techno-economic development itself'. As the chief cause of these modern environmental problems as well as 'the medium of their definition, and the source of solutions' (p. 155), the sciences occupy a controversial and contradictory position in the risk society. In the face of global environmental changes that seem to make them 'more and more necessary', the sciences are at the same time, less and less sufficient for the socially binding definition of truth' (p. 156). Beck's notion of the 'risk society' provides a useful starting point from which to begin making sense of the recent controversies about science, social constructionism, nature and education.

Against this backdrop of uncertainty about the risks associated with scientific and technological progress, the status of scientific knowledge has become the object of fierce, academic dispute (Demeritt, 1998: 174). The controversy involves a variety of cultural critics who emphasise the socially contingent manner in which scientific knowledge is constructed against defenders of science, many of them practising scientists themselves, who uphold a more conventional understanding of science as the progressively more accurate explanation of a real, independent and pre-existing natural world. This commonsense explanation of science is epistemologically realist. In recent years critiques of scientific and epistemological realism have become widespread. Social constructionist thinking has growing appeal amongst educational researchers and practitioners within the academy.

Schools as an institutionalised form of modernity are also having to respond to these challenges. Furlong and Cartmel (1997: 4) note that contemporary teaching and learning in schools involves embracing 'new scenarios' and confronting 'old barriers' in all areas of social life including schooling, its connection to the labour market, and spheres that appear further removed like politics, consumption and a 'risk society'. Given their role in preparing children and young people for the future, the implications of social constructionism for teachers and teacher educators are particularly important.

The fourth story is very much a part of the third. Research traditions in environmental education are a very lively contemporary issue (Williams, 1996: 9), as is research quality more generally. They reflect a drive in educational research and the social sciences, on the one hand, and environmental, geography and science education on the other, to develop alternative research paradigms to the positivist tradition (Williams, 1996: 9).

Robottom and Hart (1993b) and Janse van Rensburg (1994) argue for a 'meta'-research agenda in environmental educational research - that is an agenda for research *about* research in environmental education. Robottom and Hart (1993b) assert that until recently, a combination of naturalism, empiricism and positivism has dominated the methodological framework. They go on to emphasise that:

Within the last decade, the discussion about issues surrounding different approaches to educational research has progressed beyond consideration of quantitative versus qualitative methods of data collection to consideration of paradigms as distinct genres of educational research – genres whose distinctiveness lies not in the main forms of data collection... but in the assumptions which prefigure what is to count as appropriate research topics, appropriate research questions and even appropriate research outcomes, in addition to appropriate research methods. In short, what is distinctive about research paradigms is not their forms of data collection but their ideology or political theory.

(p. 593-4)

Research in South Africa by O'Donoghue and McNaught (1991) also suggests that there is a need to engage the debate about the relative adequacy of alternative (competing) approaches to research in environmental education, so that their respective epistemologies, political theories, and assumptions about the role of research itself are made explicit and critically appraised. Some authors (e.g. Popkewitz, 1991; Robottom, 1991, 1992a; O'Donoghue, 1993; Robottom and Hart, 1993a and b; Janse van Rensburg, 1994) have also pointed out that many of the proposed solutions to the risks of modernity are often based on the very assumptions which underpin the issues they seek to address.

Ian Robottom, an Australian environmental educator, wrote in 1992:

In a sense, two major international educational agencies are backing different horses in the methodological contest presently taking place in environmental education research. The dominant US approach has a longer history, is aggressive, and seems to be receiving the legitimating support of the UNESCO-UNEP International Programme for Environmental Education through its recent Environmental Education Series publications. On the other hand, the alternative methodological approaches of participatory action research and case study have a short history in environmental education, are less strongly supported by funding bodies, but have received recent support and legitimisation through the Organisation for Economic Co-operation and Development's Centre for Educational Research and Innovation (OECD-CERI).

(1992b: 67)

In Europe, the field of research in environmental education shows strong signs of interest in alternative approaches. Current projects in some twenty predominantly European countries have eschewed the applied science approach of much North American research in environmental education and are exploring the relationships that such alternatives as action research and interpretive case study research have with professional development and curriculum development in environmental education. Part of the activities of these projects is the theorising of the relationships among the political theories of various methodologies on the one hand and the substantive area of environmental education on the other (for example, see Elliott, 1991).

What is clear about these OECD-CERI supported European projects is that they are focusing on issues that are educational (they bear on the everyday professional activities of environmental educators), that the projects themselves treat as a proper research issue the question of the appropriateness of competing methodological approaches for environmental education itself, and that the deliberative choice in the projects is for non-applied science approaches of the interpretive and action research kind (Robottom,

1992b: 67). That the choice of issues is itself subject to the worldviews of the researchers is explicitly recognised by the scholars quoted above:

To the extent that postmodernism [social constructionism] challenges conventional assumptions about knowledge, morality and subjectivity, it raises fundamental questions about essential elements of modern environmental educational thought and practice.

(Gilbert, 1992: 56)

In a recent publication Joy Palmer (1998) offers an overview of research trends and initiatives in environmental education during the last two or three decades. 'It would seem then that the evolution of environmental education research has involved a slow yet steady movement from its roots in the scientific paradigm towards a broader base of postpositivist methodologies. For many researchers actively developing projects in the field today, this evolutionary trend has been far too slow to develop' (p. 118). She identifies a number of characteristics in the field, namely that:

- the field is now dynamic and expanding at a rapid rate around the world
- that quantitative research studies are still dominant, though the number of qualitative (including interpretive and socially critical) research studies has increased considerably in the 1990s
- there is an increasing number of major funded research studies being commissioned around the world
- and there is an ever widening range of themes pursued by environmental education researchers. Four key, overarching themes that appear to dominate global effort are the location of environmental education in the curriculum, the development of resources, models for teacher education, and the development of environmentally responsible behaviour.

(Palmer, 1998: 118- 121)

It would appear that little is known about the specific nature of the activity of environmental education or about teacher thinking related to these practices. Part of the research task, as I saw it, was to examine this relationship within the context of current policy development within a more reflexive modernity

These four stories of science and social constructionism, and the matter of nature and the pedagogical role of education and educational research, within a more reflexive modernity, are simply *told* along the way, used as a 'backdrop' or context for the two main stories - of a committed researcher telling particular truths about 'good' pedagogy in environmental education and of enacting educational research. But by backdrop I most decidedly do not mean an impassive context to situated human activity. Rather, I take context to be a necessary constitutive element of interaction, something active, differentially extensive and able to work on the bounds of subjectivity.

The two main stories are disclosed in the pages that follow; as the author they are *my* stories about how as a committed researcher and through collaboration with a primary school teacher, Suzanne, I tell particular truths about 'good' pedagogy in environmental education and doing educational research. They are stories that have been laid down gradually over a number of years, and which continue to be coming into being and practised as I write these words. I take as my major responsibility both detailed description (Wittgenstein,

1958) and raising questions that might be of concern to [environmental] educators in what I think is a loose amalgam of analytic workers pushing toward greater prevalence of committed forms of educational research.

But through my two stories I try to *allow* Suzanne to speak for herself. I do this by foregrounding aspects of the environment-related educational practice of Suzanne through her own narratives, in particular in chapters 6 and 7. The concern for 'voice' in educational research Rosanna Hertz (1997) argues is a concern with how to create a kind of research inquiry that produces moral descriptions and accounts about the personal and professional ways of life of the writer and those written about; that is, where the author's voice and those of her/his respondents are situated more openly for the reader (p. vii). Voiced research (Smyth, 1999) 'is, therefore, political in that it has an explicit agenda of reinserting in multiple ways, opportunities for expression that have been expunged because dominant social visions hold sway' (p. 74). 'There is always continual struggle over whose views get to be represented. Voice is how authors express themselves and 'others' within an inquiry. New conventions in how we present our respondents and ourselves have challenged us to rethink ethical issues surrounding educational research. Voice is a struggle to figure out how to present the author's self while simultaneously writing the respondents' accounts and representing/presenting their selves.

The two main stories (and the four other stories) criss-cross and intertwine through three interrelated stagings in the text:

1. *a case study*: or what Michael Bassey (1999) calls a study of a singularity - the particular events, actions and social relations within a small scale collaborative action inquiry research project between myself and Suzanne, conducted in a local authority primary school in Nottinghamshire, UK, between September 1994 and July 1996.
2. *a collaborative practice*: the actual words, ideas, and theorising within the *case study* - about 'good' pedagogy in environmental education. I hope that this staging can be conceived, at least in part, as something more than simply myself; rather two separate individuals in conversation. Of course, it is my disclosure - but I do want the voice of Suzanne to be heard through her own narratives (see chapter 6 and 7). This staging should have extended to the methods and methodology of the collaborative practice itself, but unfortunately this aspect of the research remained largely unrealised (see chapter 5 for an explanation, and for my own critical analysis of doing committed and collaborative educational research).
3. *my own analytic project*: within and beyond the collaborative research project itself, in which I am trying to develop a particular kind of reflexive theory/writing about being a committed researcher telling particular truths about 'good' pedagogy in environmental education and doing educational research (in particular see chapters 3 and 8).

The text emerges from my participation in the professional life of Suzanne, a teacher in a semi-rural primary school, and an engagement with socio-ecological issues through forms of environmental education and professional practice which seek improvement within that practice and a desire through education to move towards more just and sustainable forms of living.

reflexive modernity, risk society and the role of expertise

Post-prefixed discourses have become established in intellectual discussion over recent decades and construct the 'social transformations of our times' (Giddens, 1994b) in some form of relation to particular understandings of modernity or postmodernity. Like their ['modern'] counterparts, they refer to processes of definition and redefinition. A critical engagement with these discourses is beyond the scope of this chapter and text. However, in the spaces opened up by these post-prefixed discourses, these social transformations can be understood in terms of processes of 'reflexive modernisation' or 'radicalised modernity' (Beck, 1992; Beck *et al*, 1994; Giddens, 1990, 1991, 1994a, b, and c; Lash and Urry, 1994).

A sense of ambivalence has been a longstanding feature of intellectual reflections on modernity, the fate of humanity and nature under modernity. Barry Smart (1999: 1) observes in the respective writings of Marx, Weber, Durkheim, Simmel and Freud traces of uncertainty and conflicting views of the prospects and possibilities inaugurated by the advent of modernity. Where they differed was the extent to which they considered the 'beneficent possibilities' outweighed the 'negative characteristics' (Giddens, 1990: 7). Indeed, the modern project has been problematised in and through a long-standing tradition of critical reflection and inquiry, a tradition which has sought to explore the complex, uneven and unpredictable consequences of modernity, a tradition which is virtually coterminous with modernity itself. It is here in a longstanding body of social and philosophical thought that a number of early 'postmodern' traces have been located. For example, in so far as a prominent concern in the respective works of Nietzsche, Heidegger, Simmel, Weber and Adorno is to take issue with modern rationality and its consequences, then these analysts have been credited, albeit *avant la lettre*, with initiating 'postmodern' interventions (Smart, 1999: 35). Modernity is the making of ambivalence as much as it is the pursuit of order, or constitutions of forms of orderliness (Smart, 1999: 6). A return of uncertainty seems to be a condition of our modern being.

Beck *et al* (1994) argue that the processes of reflexive modernity tend to disrupt traditional social relations and groupings; they tend to force individuals to engage in a life-long reflexive do-it-yourself project of the self (Beck, 1992); and they structure conditions in which narratives of 'uncertainty' and 'risk' (or 'manufactured risk and uncertainty', Giddens, 1994a: 4) become dominant as a consequence of the penetration of all aspects of 'the social' and 'the natural' by the activities of expertise.

Giddens (1990) argues that the conditions of 'radicalised modernity' are marked by processes of reflexivity in which claims to certainty in knowledge production – the very foundation of modernist thinking – becomes intensely problematic. For Giddens (1994a), human existence on an individual or a collective level, is not necessarily more risky under contemporary social conditions, but, rather the origins and the

scope of risk and uncertainty have changed. He argues that 'manufactured risk is the result of human intervention into the conditions of social life and into nature' (p. 4). Moreover, 'what was supposed to create greater certainty – the advance of human knowledge and 'controlled intervention' into society and nature – is actually deeply involved with this unpredictability' (p. 3). The 'uncertainties and opportunities' which are a consequence of the advance of manufactured uncertainty are 'largely new':

They cannot be dealt with by age-old remedies; but neither do they respond to the Enlightenment prescription of more knowledge and control.

(Giddens, 1994a: 4)

For Giddens (1994a) these institutionally structured reflexive processes mean that 'we have no choice but to choose how to be and how to act (p. 75).

For Beck *et al* (1994) this 'paradox of human knowledge 'is central to understanding processes of reflexive modernisation. These processes are marked by the emergence of a degree of collective awareness that our contemporary conditions of existence are characterised by the thoroughgoing penetration of the social and the natural by reflexive human knowledge. Such a situation, Beck argues, leads not to a position in 'which collectively we are the masters (sic) of our destiny, but rather to a series of settings in which we are confronted with the possibility that, as a consequence of our doing things', the future becomes very threatening.

These processes signal a 'demystification' of the roles and functions of 'science' and technology in classical industrial society. Similar processes of doubt and uncertainty are attaching within contemporary settings, to modes of work, leisure, the family and sexuality (Beck, 1992: 10). Beck (1994) argues that these processes deconstruct 'the premises and contours of industrial societies' (p. 3). Within processes of reflexive modernisation, this uncertain and apparently unconstrained openness forces individuals, groups and communities to be '*set free* from the certainties and modes of living of the industrial epoch' (Beck, 1992: 14, original emphasis). However, these reflexive processes answer not to a single logic, or rationality, or overriding (national, community) interest. Rather, Beck (1994) emphasises that these processes occur, largely, 'surreptitiously and unplanned in the wake of normal, autonomised modernisation' (p. 3). Autonomous refers here to the manner in which these processes are generated within rationalities, frameworks, interests, forms of regulation and management peculiar to particular settings, institutions and centres of expertise. Reflexive modernisation ought to be understood as a process in which the 'self confrontation with the effects of risk society' cannot be accommodated within the 'institutionalised standards of industrial society' (Beck, 1994: 6). This does not mean that at some stage these effects cannot (do not) become subjected to processes of reasoned public, political and scientific reflection. Rather, Beck's (1994) argument suggests that such later reflection cannot 'obscure the [publicly] unreflected, quasi-autonomous mechanism of the transition' (p. 6).

Within these reflexive processes, this mediated abstract knowledge becomes constitutive of the arenas of the social world/practice they describe or analyse. Under these conditions, Giddens (1991) argues that 'self

identity' becomes a work-in progress, a biography which is reflexively lived and 'organised in terms of flows of social and psychological information about possible ways of life' (p. 14). A more reflexive modernity in this sense can be understood as a 'post traditional' social order in which questions about 'how shall I live' or indeed, 'how shall I teach' assume both a novel significance, and indeed, become highly consequential to the 'outcomes' of this reflexive project of the self (p. 14). A post-traditional society for Giddens (1994a) is not one in which 'tradition disappears – far from it'. Rather, in a post-traditional order 'tradition changes its status'. Traditions in this view, 'have to explain themselves, to become open to interrogation or discourse' (p. 5).

The reflexive modernisation thesis profoundly problematises the institutionalised activities of various experts who are restlessly engaged in constructing 'better' knowledge in the quest for determining what constitutes good pedagogy in environmental education and educational research; indeed about what constitutes educational truth in general. Processes of analytic production in the context of producing truths about pedagogy in environmental education and educational research have no choice but to recognise the uncertain nature of truth telling which characterises reflexive modernisation. The tensions generated within these processes are not resolvable. However, the 'return of uncertainty' need not be seen as immobilising in the context of political and analytic practice.

For many critics of post-prefixed theories, this is exactly their difficulty. Under the 'postmodern condition' it is argued politics and critique are compromised, dissent becomes generalised, undermined from the very start; there is a relativism of the vocabulary of aesthetics, ethics and epistemology. It is reproached by its critics as leading to easy assimilation or accommodation with the status quo. Though modernity's apotheosis of scientific reason was significantly challenged by continental critics from the end of last century, there has persisted the hope of 'rational progress' or the alternative Hegelian promise of reconciliation. Beck *et al* (1994) 'refuse the paralysis of the political will', which they argue characterises much of the intellectual commentary in these times. Popkewitz and Brennan (1997) emphasise that 'people do continue to act, they have no option but to act in their daily lives' (p. 313). A notable exception to such political and analytic paralysis is the work of many feminists who have mobilised their intellectuality in any number of domains in various political struggles.

Today, we are learning to face up to the ambivalences and ambiguities of the contemporary moment, learning to be more modest in our modernity, more cautious in our hopes, more sceptical of the promise of the future. Such a configuration of post-traditional society demands a new self-discipline - to take responsibility for our individual and social existence - that we be mindfully responsible not only about our actions but even about our hopes and dreams. The settings of environmental education pedagogy and educational research are sites in which these fundamental struggles are (and will be) made concrete, whether university/school teachers and learners in environmental education and educational research acknowledge this or not.

Of course, within the framework I have just outlined, the nature of critique and politics under these conditions of reflexive modernisation must also submit to the principle of radical doubt. Under these conditions, a 'committed theory', which takes as its object the form and practice of education generally and environmental education and educational research in particular, must, in this sense, be a 'committed theory without guarantees'.

Nottingham 1993

On arriving at Nottingham in April 1993 to commence a three-year full-time research studentship³ in environmental education at Nottingham Trent University I was aware of a number of thoughts, feelings and assumptions all bound up with a sense of opportunity and uncertainty. I understood the overall purpose of the studentship in environmental education as an opportunity to examine an aspect of the relationship between theory, practice and research.

1993/1994 was an uncertain, but exciting time to be getting involved with educational 'research'. Along with others, one of my first assumptions was that a decisive critique of positivism had been established; and the significance of the argument that as social theorists/educationalists we work within not above broader historical, social and intellectual contexts, had taken hold. The words of Michael Apple (Lather, 1991) were at the forefront of my thinking:

Positivism has been displaced, or so we hope. The program of making everything knowable through the supposedly impersonal norms and procedures of 'science' has been radically questioned. The hope of constructing a 'grand narrative', either intellectual or political, that will give us the ultimate truth and will lead us to freedom has been shattered in many ways. Reality it seems is a text, subject to multiple interpretations, multiple readings, multiple uses. Accepted paradigms and language games - to borrow from Kuhn and Wittgenstein - have been relativised and politicised. As the saying goes, all have been 'decentred'. What does this mean for social research in a 'postmodern age'?

(p. vii)

The expectations of the Earth Summit (June 1992) were still fresh in my mind. I recognised the common national and international assumptions within the debate about environments, quality of life issues, sustainability and education, as captured by John Huckle and Stephen Sterling in 1996

Societies are faced with making an unprecedented and historic change in a short period of time if they are to achieve a sufficiently sustainable form - environmentally, socially and economically; education will have to play a key role in any such transition; education will itself be transformed in the process, and it is necessary and possible to build on the limited progress already made.

(p. xiii)

Over the last decade there has been growing concern over global inequalities, the stability of ecosystems and the sustainability of existing lifestyles. Issues about quality of life of current and future generations were now at the forefront of public concern (Dunlap, Gallup and Gallup; 1992). Would Rio make a difference? There are probably as many answers to this question as there were delegates at the event. And no doubt debate will continue over just how successful UNCED really was. If nothing else, The Earth Summit had compelled governments, business and establishment leaders to acknowledge publicly the self-

evident unsustainability of the world today, and provided a crucial beginning for debate between developed and developing countries. A number of issues from the Earth Summit stood out for me.

The first was the relationship between local-global. Chatterjee and Finger (1994) describe the issue as:

The major lesson to be drawn from the entire ten year process leading up to UNCED is, in our view, that the global approach is at least a useful tool for awareness raising. But it is not at this level that the environment and development crisis will be dealt with... We have no choice but to focus on the local, its people, and its communities...and collectively unlearn the development paradigm of which modern society is both the product and the victim.

(p. 172)

The emphasis placed on the 'local' by Chatterjee and Finger is not unimportant in an attempt to shift the analytical and political emphasis, but as pointed out in chapter 1 the words 'local' and 'global' offer points of view on networks that are by nature neither local nor global, but are more or less long and more or less connected (Latour, 1993: 122). Latour (1993) points to the problem of binary oppositions to our way of thinking, we define the 'local' by contrast with what we think we have to attribute to the 'global', and vice versa – and in between 'there is nothing thinkable – no collective, no network, no mediation, all conceptual resources are accumulated at the extremes' (p. 122). We need to rethink local-global in terms of both the sustainability of ecosystems and lifestyles, and environmental education/education for sustainability.

A second issue was the concept of 'sustainable development'. One of the cornerstones of all recent international reports has been sustainable development. It has become a central notion in the discussion of how we should respond to environmental concerns. Many views of environmental education take education for sustainable development as an overarching aim, but it is clearly open to varying, and sometimes conflicting, interpretations. In recent years environmental education/education for sustainability has been built on a grand narrative of sustainable development. 'We need to be sensitive to these [interpretations] if it is to play a coherent role in the formation of policy and practice' (Bonnett and Elliott, 1999: 309).

The concept has become a crucial part of the debate on global environment-development issues. It provides the mediating bridge between the environment and development lobbies. However, as Gilbert Rist (1997) argues, its meaning is highly ambiguous:

...it is to its ambiguity that the term 'sustainable development' owes its success. For ecologists, the interpretation of clear enough: sustainable development implies a production level that can be borne out by the eco-system, and can therefore be kept up in the long term...'sustainability' means that the process can be maintained only under certain externally given conditions. The dominant interpretation is quite different. It sees 'sustainable development' as a invitation to keep up 'development', that is, economic growth.

(p. 192-3)

The meaning of sustainable development and the means whereby it is to be realised remain contested, and Redclift (1987) suggests the concept is surrounded by contradictions. Natural scientists disagree as to what is to be sustained at what levels, over what spatial and temporal scales; while social scientists use the

concept both as a methodology for maintaining economic growth and in a normative sense, linking it to human needs and livelihoods (Huckle, 1996).

The concept has been shaped through the UNCED process and their dominant discourse of development, which have uncritically connected the two terms 'development' and 'sustainability' (Firth and Plant, 1994). The United Nations and national governments seem to have adopted sustainable development without questioning the assumption that growth and further development were necessary, let alone the assumption that they were possible. It seems that 'the concept is being used to politically engineer a social consensus about the core values which ought to govern human interaction with the environment across all sectors of society: business and commercial, institutional, community and individual (Chatterjee and Finger, 1994).

Education cannot screen out questions about the development of sustainable societies, but nor can it ignore questions about the form that this will take based on the principles of 'social justice' and 'equity' and the various aspects of sustainability: ecological, economic, social, political and technological. The concept of 'sustainable development' has been constructed within education in such a way as to exclude its gaps and contradictions. The concept continues to present the ideal of progress as a universal and natural force. Its unexamined use within education 'holds the danger of covering over a number of epistemological, ethical and social/political issues which are significant not only for environmental education, but for education as a whole' (Bonnett and Elliott, 1999: 309).

Third, the ecological, social, economic, political and technological imperatives of the concept of sustainable development have established a renewed and reoriented agenda for environmental education. IUCN/UNEP/WWF (1991) described this new direction and agenda for environmental education as 'education for sustainable living', while it has also been termed 'education for sustainable development' and 'education for sustainability'. This process began in the late 1970s and 1980s through various international conferences and reports (as outlined in chapter 1). The Earth Summit continued this advocacy:

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues.

(UNCED: Agenda 21, chapter 36: 221)

This immensely appealing rhetoric expresses a common and conventional view of environmental education or education for sustainability and what it needs to accomplish:

it is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development

(UNCED: Agenda 21, chapter 36: 221)

As a result the 1990s have seen strong support for the idea of schools playing a critical role in educating for sustainability. John Morgan (2000: 169) suggests that in the British context there is a groundswell of feeling towards a better world that involves a broader vision of sustainability than simply concern for the environment. This links issues of sustainability with social justice and democratic renewal, and increasingly he suggests school geography is beginning to tap into, and reflect, this widespread 'structure of feeling'. It

is important to understand what is meant by sustainability and sustainable development within the growing expectations of education.

Particularly important from my viewpoint as an educator was that the calls from Rio 'for global transformation' towards healthy environments bring into sharp focus Peter McLaren's (1994) question: 'can schools be sites of transgressive practices? Eureka Janse van Rensburg (1994) similarly, but more specifically, was concerned with the extent to which environmental education and environmental education research has the potential to contribute to social change. As I was thinking at the time, was the 'rhetoric from Rio' merely 'over-claim', the over extension of the capabilities of environmental education?

Fourth, and equally significant, any reconceptualisation of environmental education towards education for sustainability will have to be extended to an analysis of the relationship between education and the reproduction of the environmental values, practices and lifestyles of [post]-industrial consumer societies within schools. Ted Trainer (1990, 1994) has argued that both the overt and implicit (hidden) curricula of schools play a major role in reproducing the ecologically unsustainable values of post-industrial, affluent consumer society. Here, there is a need to recognise that the education system is part of the instrumental rationality of late modernity (Firth, 1995). Michael Bonnett and John Elliott (1999: 309) note that the contributions to the debate on environmental education are from a 'variety of different perspectives and backgrounds within the education system...nonetheless, there seems to be broad agreement on one point: environmental education, properly conceived, may require a radical transformation of the nature of teaching and schooling'.

I also acknowledged that such understanding of the social purposes of environmental education was not necessarily congruous with common practice in schools. As Daniella Tilbury (1997a: 106) points out, the introduction of environmental education into school curricula in the 1970s was often confused with a diversity of disciplines which used the environment as a vehicle for teaching, such as 'rural studies', 'local studies', 'environmental studies and 'outdoor education' etc. As Graham Corney and Nick Middleton (1996) argued, 'at a basic level, then, the opportunity for [geography] teachers to contribute to their students' environmental education is acknowledged, but our real concern is with the nature of this contribution. Is it to be simply 'teaching about the environment', which we feel is insufficient on its own, or is there to be a more committed approach, relevant to the world's environmental predicament, through 'teaching for sustainability' (p. 324).

The development of much environmental education within schools was seen in terms of the use of the environment for educational aims, the effect of which has been to detract from the *social purpose* of environmental education which evolved in response to concern over the deteriorating quality of the environment – the need for education to help improve the existing environmental predicament and move towards more sustainable forms of living. Tilbury (1997a: 106-7) argues that these problems of purpose and curriculum identity continued during the 1980s until environmental education became a cross-curricular

theme of the National Curriculum. Curriculum Guidance 7 (NCC, 1990) and Advisory Paper 17 (CCW, 1990) gave environmental education a new curriculum status, acknowledging it as an 'essential part of very pupil's curriculum' (NCC, 1990: 1). These documents also emphasised the social purposes of environmental education, promoting active involvement of pupils in environmental issues. At the beginning of the 1990s the aims of environmental education were stated as being to:

Arouse pupils' awareness and curiosity about the environment and encourage active participation in resolving environmental problems.

(NCC, 1990: 3)

The role of environmental education as a cross-curricular theme in the National Curriculum was underplayed by the Dearing Review in 1994, but environmental educators at that time (for example Huckle, 1990; Fien, 1992, 1993, Robottom, 1990; Robottom and Hart, 1993a) and the Earth Summit in 1992 continued to raise its profile in education. Increasingly during the 1990s environmental education was reoriented towards 'education for sustainability'.

There has certainly been a good deal of activity in the field of environmental education, particularly since the Earth Summit at Rio. 'Most governments now have policy statements which endorse 'sustainable development' as a major purpose of schooling and indicate how it can be fulfilled through their national curriculum frameworks' (Elliott, 1999: 333). For many educators education for sustainability has come to be seen as a convergence of the 'adjectival education's' oriented towards social change – citizenship, peace studies, global education, world studies, political education etc, as well as environmental education and development education. But Elliott questions whether all this activity has changed anything. He is concerned that 'much change appears to be happening while little is... 'on the one hand, student interest and the number of programmes has never been larger. On the other hand, most students never develop ecological literacy and the problems schools face are the same as a decade ago' (Corcoran, 1998; in Elliott, 1999: 333).

I was also aware of developments taking place within environmental education in Europe, in particular the 'ENSI project'. The *Environment and Schools Initiatives* programme was initiated in 1986 by the Organisation for Economic Co-operation and Development (OECD), the aim being to support action research-based approaches to professional development within a context of community-focused environmental education. 'The project coincided with two related factors. First, the rise in many OECD countries of 'grassroots' pressure groups expressing concern about the environmental impact of economically driven technological development. Second, governments in these same countries having to face the educational implications of the increasing social complexity resulting from rapid economic and social change. In response, many countries began to rethink their highly centralised and bureaucratised national curriculum policies in order to devolve more responsibility for curriculum initiatives to schools and local communities' (Elliott, 1999: 326).

Since its initiation and first phase, from 1986-1988, ENSI has developed further through two more phases (1988-94, 1994-). Interestingly, England chose not to participate at any stage. 'From the UK perspective ENSI appeared to mismatch government-initiated curriculum reforms, which contrary to trends in continental Europe, appeared to give schools and local communities little space for curriculum initiatives and reinforced a curriculum organised around discrete subjects' (Elliott, 1999: 326).

The programme is distinctive in two ways. It argues for an environmental education that is community based and action orientated, thus placing it within a 'critical' social education perspective. It stresses a significant professional role for teachers – that of teachers-as researchers. 'The launching of ENSI, it might be argued, constituted an indicator of a transition in some advanced countries towards a more reflexive form of modernisation in which governments responded to the growth of oppositional social movements and their critiques of the environmental impacts of the means of wealth production' (Elliott, 1998: 131). These were ideas that seemed to closely match my developing understanding of environmental education, and helped to shape the research project.

In an overview of the rationale, progress and issues raised by the ENSI programme and network Bonnett and Elliott (1999) claim that it had established 'a 'transgressive' paradigm for education in which the boundaries between teacher and pupil, school and community and separate subject disciplines are crossed' (p. 309-10). They relate this approach to differing agendas for school reform and views of education for citizenship, characterising the ENSI project as aiming to produce not simply the responsible consumers to which more traditional approaches aspire, but individuals who are prepared to participate in 'shaping the social and economic conditions of their existence in society' (p. 310).

A few years on, and in the run up to the 2000 review of the National Curriculum, QCA set up a number of advisory groups, including one on sustainability. In September 1998 a report submitted to the DfEE/QCA and the DETR from the panel for Education for Sustainable Development, chaired by Sir Geoffrey Holland, on: *Education for Sustainable Development in the schools sector*, was arguing that 'the mandate for education for sustainable development is extensive' (p. 28). The report outlined various reasons why education for sustainable development had a marginal presence in schools and the rationale for its introduction:

There is an emerging consensus amongst public, government and business on the need to move with some urgency towards more sustainable lifestyles if future generations are to enjoy quality of life. All people are directly affected by sustainable development issues but while awareness of these issues is high, the general level of understanding of these issues and of their significance and relevance is poor. While education has long been recognised as a key instrument for participative citizenship in relation to sustainable development, policies that support practical educational change in this regard have been largely absent. All pupils need to be equipped with the knowledge, values and skills in the area of citizenship and sustainable development that will allow them to participate as full members of society and work towards solutions to sustainable development problems and issues.

(p. 30)

The reports real educational significance was its emphasis on the promotion of the notion of a 'participatory citizenship' which was specified through a number of generic learning outcomes for each key stage of the National Curriculum. These learning outcomes connected key concepts, values and dispositions, skills and aptitudes, and knowledge and understanding. Unfortunately these learning outcomes are not visible in the National Curriculum 2000. However, from September 2000 Education for Sustainable Development or what I have termed education for sustainability, is now part of the statutory entitlement for all pupils in terms of 'Learning across the National Curriculum':

Education for sustainable development enables pupils to develop the knowledge, skills, understanding and values to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future. There are opportunities for pupils to develop their understanding of sustainable development within the school curriculum, in particular in their work in geography, science, PSHE and citizenship.

(DfEE/QCA, 1999: 23 or 25)

Even in 1994 when I began the research project teachers had the opportunity and potential to embrace education for sustainability within their practice, although the original English National Curriculum fell short of the advice given in the CCW advisory paper, *Environmental Education* (1990) where the aims of education for sustainability were admirably summarised:

encouraging and helping young people to apply knowledge and skills in wise and caring actions which reflect a growing commitment to environmental values. It is, therefore, essential that schools provide pupils with opportunities for exploring their personal feelings and responses to environmental issues, and with a climate for learning which nurtures positive attitudes towards the environment and a strong sense of social and environmental responsibility.

(p. 17)

The near daily media accounts and burgeoning academic literature, as well as the international and national reports documenting increased concern for the world's ecosystems added a sense of urgency for clarifying the role that education can play in the development of more ecologically sustainable societies. Both environmental education and research were now widely regarded as having a role to play in terms of change towards healthier environments and more sustainable forms of living. I saw my involvement in environmental education and environmental education research in terms of its social purpose, but I was uncertain to what extent this might be the same for teachers in school.

human geography, geography education and 'nature' past and present

Now and then, certain events occur in one's life which, with wonderful clarity, either at the time or later, provide a snapshot illustration of much wider themes and concerns. As a child, recently started the local high school, each day I walked to school and back, a round trip of four to five miles. Most of the journey was across what was locally known as 'the brook or 'the quarry', an area of waste land and a small stream/brook that was part of a large sand quarry, one area of which was still in production when I started my secondary school. Although 'the brook' was an area of old industrial land, now overgrown, surrounded by relatively new housing estates and some shops, and often littered and despoiled at the edges where the

waste land and shops met; it was, as well as a routeway to school, a known place by children, shared in our memories and experiences: a 'natural' playground of high mounds, steep slopes, trees, bushes and undergrowth, concealed spaces and vantage points, hide-and-seek pathways and bicycle tracking, a place to promise as a child not to go. The small stream ran its narrow course across the land, often half hidden by reeds and bulrushes, never more than a few inches in depth with the occasional deeper pools, these the birth place of thousands of tadpoles and sticklebacks each year. Easily traversed across two or three stepping stones, in winter the stream often became a swollen torrent, crossed only by a wooden bridge; a marker point on one of the school's cross-country runs; a third of the way to school, two thirds of the way home. When it snowed 'the brook' was transformed, a reason for leaving home early to go to school, to trek through the mantle of pristine pure white snow before the footsteps of others could despoil the illusion of 'Disney winter wonderland' purity.

Tragically, the land was used to build the M6 motorway, the section after spaghetti junction leading up to junction 7. I do not recall ever being informed of this proposed development, let alone asked my opinion. For months and months I had to walk an alternative route to and from school, along the streets of unknown faces that skirted 'the brook', passed the neat, uniform semi-detached and terraced houses of an unknown area of north Birmingham suburbia. 'The brook' was never the same after the motorway was built. I could walk the old route again, past the sand quarry, only it wasn't the old route any more; now there were tarmaced paths, even and straight, and a huge concrete motorway bridge to walk under, which very quickly became covered in graffiti, and echoed loudly to the sound of passing traffic. What's more the stream was gone – they had taken the stream. A new veneer covered 'the brook', which defiled its 'natural' state for me.

Raymond Williams (1976: 184) the British literary critic said that nature is perhaps the most complex word in the language. The prevailing approaches in the social sciences emerged and consolidated themselves in the decades around the turn of the century. The all pervasive influence of biological thinking at that time was countered in the liberal-humanist traditions of social thought, by an insistence on human distinctiveness *vis-a-vis* 'the other' of nature. The dualist strategy of thinking about 'nature' and 'society' (or culture) as qualitatively distinct realms offered one obvious and unambiguous way of resisting biological determinism in various fields of sociological analysis, and has largely persisted until more recently.

The conceptual structure or 'disciplinary matrix' by which the social sciences came to define themselves, especially in relation to competing disciplines such as biology and psychology, effectively excluded or forced to the margins of the social sciences questions about the relations between 'society' and its 'natural' or 'material' substate (Benton, 1994: 29). The *interface* between human social practices and their material ('natural') conditions and consequences is lost to view (Benton, 1994: 31).

Investigating the relationships between the 'natural' and the 'social' realms has been an abiding preoccupation for geographers (Naylor, 2000: 261). However, the dualist logic of thinking about 'nature' and 'society' (or culture) as qualitatively distinct realms persisted. Clarence Glacken (1967) in his *Traces*

on the Rhodian Shore, an intellectual history of the *idea* of nature, identified three pre-18th century (and pre-capitalist) Western intellectual responses to nature: something to dominate, something to be dominated by, and something to live in harmony with. Examples of all three can be found during geography's formative period of institutionalisation between the mid-19th and early-20th centuries, in its concern with the relationship between human kind and nature (Man-nature or Man-Environment as they used to be inappropriately called). It was primarily the second that held sway, taking the form of a crude environmental determinism. Indeed, environmental causation (determinism) was one of two main means of classification and synthesis developed in the discipline at this time (the other being the regional synthesis of Humboldt and Ritter⁴). In the secondary classroom of the late 1960s and early 1970s I briefly encountered the idea of a crude environmental determinism. Its shallowness (though not its masculine shoddiness, ethnocentrism and imperialism) was highlighted by being told of an alternative idea, environmental possibilism, which along with other ideas, not told about (human ecology, cultural landscape approach), increasingly came to challenge environmental determinism within the discipline from the 1920s. Possibilism suggested that nature provided a range of opportunities for human action among which individuals could choose to varying degrees. Although improvements over environmental determinism, these ideas nevertheless continued to conceive nature as neutral and external, whose fixed characteristics and regulatory laws could be understood only through the canons of natural science (Trevor Barnes and Derek Gregory, 1997: 174). The *idea* of nature briefly encountered in the classroom seemed not to connect with the more material outcome of the loss of 'the brook'.

I remember the surveyors and the planners inspecting 'the brook', mapping it out, laying bare its secrets for its new users: commuters and truckers. 'The brook' was spoken for, as I had spoken for its virtues, only now the stories being told took on a new impersonalised authoritativeness, a new permanency, culturally ordered by planners from the very moment that 'the brook' entered the public domain as part of government national transport policy. The interpretation of these events, looking back now, would be an example of the way, at a specific site, that 'nature' was remade.

The event of building the M6 motorway close to my home as a young person, was never about 'first nature' or 'social nature', the 'built environment' or the 'natural environment' or any other kind of 'nature' as such. At the time I was unaware of such 'enframings' anyway. But it was about a sense of things being 'unfair' and of the power of a non-personalised authority acting for the benefit of unknown others. More significantly, there seemed to be a lack of willingness to recognise 'the brook' as an issue by teachers, to claim the significance of it to my/our lives. 'The brook' was spoken for and represented, it was remade, initially as a motorway and eventually in my mind. It was for me, also the first time that the matter of 'nature' was anything more than simply, *being* there. In my writing today 'the brook' has become the object of the most intimate political-economic transformation, discursively delimited in ways every bit as material and consequential.

As an undergraduate in the mid 1970s I had been introduced to the abstract logicalness of what was known to begin with as the 'quantitative revolution' within geography, but more usefully thought of as a scientific [positivist and behavioural] spatial revolution. I learnt that in the 1960s this 'spatial geography' grew out of frustration with the dominant 'Hartshornian' discourse of geography, which saw the discipline as a synthesising study of regional uniqueness, and which prevailed, without serious or at least open criticism, as the hegemonic defining disciplinary philosophy through the 1940s and 1950s.

During the 1940s frustration had grown with the discipline of geography as it had been, in several senses. In particular the reaction against environmental determinism had resuscitated regional studies, in descriptive, idiographic terms as areal differentiation (Richard Hartshorne, 1939), rather than as a nomothetic, scientific synthesis. This has to be explained not only in terms of the difficulties inherent in such a scientific synthesis, but also by the revulsion against geography as science with environmental determinism as model case (Peet, 1998: 32). This meant that during the 1940s and 1950s geography was again secure internally as regional studies, but vulnerable externally in terms of criticisms of its lack of scientific nature and modern scientific methodologies, the remoteness of the discipline from practical and social utility and the rest of the social sciences, and thus the lack of prestige on campus and in government and industry (Richard Peet, 1998: 19). Edward Ullman (1953) a professor of geography, at the University of Washington, stated that geography as 'areal differentiation' implies that 'we are not seeking principles or generalisations or similarities, the goal of all science' (p. 60).

The 1960s saw geography being redefined again, this time as the 'science of space'; but space not in the Berkeley school's sense of earth surface transformed through human action into cultural landscape, space not as the irregular characteristics of natural environments in the study of regional uniqueness, but space made to resemble physics, space reduced to distances between points. 'It began to be argued that the principle of 'least effort' governed the entire range of individual and collective behaviour, even language and preconceptions, as a natural law, an orderliness that could be studied by means of the exact sciences' (Richard Peet, 1998: 19). Thus space, understood in positivistic terms, became synonymous with scientific modernity. It was argued that a new social physics was possible, a scholarship unprejudiced and truly modern, one benefiting humankind through planning. Geography as the study of regions could never use the methods of 'social physics'.

For geography to be modern science it had to be redefined away from the irregular characteristics of natural environments and regions describable in general systematic terms, and instead described in terms of distance, pure, simple and quantifiable. The 'spatial revolution' of the 1960s changed geography from what was judged to be a prescientific notion of the discipline as 'areal differentiation' into a modern mathematical science dedicated to the pursuit of truth. Geography became the study of space as regularity, with spatial behaviour as distance minimisation, and geometry as disciplinary language - a new, realist, scientific discipline. Many geographers came to see the discipline as spatial science, tempted with the promise of relevance, apparent sophistication and the resulting social prestige (Peet, 1998: 21).

Spatial science linked the discipline with a philosophy, empiricism-positivism, already suffering (in the social sciences) from attacks from post-positivist critiques. The metaphilosophy of scientific truth, with truth defined as accurate representation through objective methodology, was already under attack as geography belatedly joined it. Positivist geography thus contained the seeds of its own critique within a wider suspicion about the power of natural science. These seeds germinated quickly under the radical political conditions of the late 1960s and early 1970s. From such criticism sprang new styles of academic geography quite unlike anything known in the past [humanistic and socially relevant geographies - radical, Marxist and welfare geographies].

The secondary school geography (late 1960s and early 1970s) I experienced began to mimic the 'scientific and spatial revolution' that took place in the academy in the 1960s. This entry into modern science limited the kinds of learning experiences within the classroom to spatial distributions, spatial flows and interactions conceived geometrically and purely spatially rather than *socio*-spatially, whether one was studying cities, industrial activity or the 'Third World'. Human beings became overly objective and mechanistic, and nature as a topic of discussion in human geography (and ironically in physical geography) was increasingly marginalised (Barnes and Gregory, 1997: 174) as a modern science of human activity with a strong emphasis on space took centre stage. This began to replace an older 'school geography' Beddis (1983) described as an 'enlightened traditionalism' which provided students with descriptive knowledge of the physical and human environments; and where explanations for human patterns of population, settlement and economic activity were offered, these tended to be framed in terms of environmental determinism or possibilism.

Space, distance and location were the key terms of spatial science, and nature and humanity were at best minor complicating factors. By assuming the tenets of positivism and emphasising isotropic plains, uniform resource distribution and spatial regularity, this new spatial science assumed nature away in all its guises. Spatial science 'discovered' an increasingly significant dimension of human life, only to fail to link space with other, equally important aspects of existence.

Geography as spatial science produced a dualism between both space and culture and space and nature, not that I would have expressed my growing dissatisfaction with school geography at the time with-in such a disciplined and 'insider' account. Ironically, the early 1970s was a time when the academic discipline witnessed calls from 'radical' geographers for greater attention to be paid at every level to more human and socially relevant geographies. Issues such as social inequality, racism, sexism and environmental problems (geography as the study of social effects *on* nature) were of rising concern and began to take centre stage for these geographers. They began to respond to the political events of the time. This new radical geography attempted to change the arena of topical coverage in ways which transformed the discipline; though my experience of school geography remained firmly wedded to the old systematic thematic geography and ever increasing attention to regularised space. Not that I was aware of the irony at the time. I was aware that the

destruction of 'the brook' during the building of the M6 motorway was never a focus for learning in the school classroom.

As a teacher of geography in the 1970s and 1980s I was never happy having to teach what I could only describe at the time as 'all this theory about space', about 'rational economic man' (sic), 'those cognitive stimulus-response behavioural theories of human perception and activity', those simplistic models of spatial laws and forms that for a while came to dominate the academic discipline and more significantly [for me as a teacher] school curricula. This was a 'geography' that I would describe now as a simplistic and ultimately very dull option of retreating into abstract worlds of compiled fact or modelled fantasy.

I involved myself in a series of debates in and around 'the discipline'. These debates took place at work with colleagues, while I engaged in others through the literature, as a member of the Geographical Association and through a master's degree. Two interests occupied me more than anything else at the time; one was finding ways of not teaching 'spatial geography', the other more positively was how school geography might engage with 'social' issues including the 'environment' and break out of its positivist and determinist legacies. This 'school geography' can be read as the product of an earlier style of academic geography, and as a product of a particular political era. The early seventies was a time when the old certainties about economic, social, political and cultural life in Britain (on which this spatial geography putatively rested) were beginning to be eroded.

Within these newly developing academic geographies 'nature' began to reappear on to the human geographers agenda, and the older positivistic view of nature was called into question (as seen in David Harvey, 1974). Nature was recognised as an important area of political tension and debate, and that such rigidly fixed conceptions of nature have been a major reservoir feeding numerous ideologies of the social. As an undergraduate, these new geographies remained largely unknown to me. I experienced and had to indulge a more traditional thematic/systematic coverage of certain areas of academic geography which still had appeal for some of the [older] university lecturers, mixed in with 'spatial science'. The teaching of 'systematic' geographical knowledge and a rationality based on scientific objectivity seemed the most important educational preoccupations. In an academic and educational sense, I came to the matter of 'nature', 'science' and 'knowledge' later rather than sooner.

During the 1980s a particular concern for geography teachers was how schools might better meet pupils and society's needs. As Huckle (1985) argued, 'while the majority of school geographers were preoccupied with the 'new' [spatial] geography, others were employing humanistic and structuralist philosophies to design lessons on such topics as environmental issues, global inequalities and urban redevelopment' (p. 301).

The type of geography education being advocated was a more socially and politically relevant form that challenged the reproduction of capitalist social relations and offered the possibility of individual and social

renewal. It was less concerned with the defence of geography per se than with the development of a broader social education. The character of this alternative, which as a young teacher I came across for the first time, can be seen in John Huckle's (1983) edited collection: *Geographical Education: Reflection and Action*, and in issues of the journal *Contemporary Issues in Geography and Education* published by the Association of Curriculum Development in Geography between 1984 and 1987. They both were concerned to develop a critical critique of current curricula and pedagogy and mirrored the concerns of the geographical left. Geography teachers were, significantly, beginning to engage in wider debates about the nature of the school and education.

These new developments in geography were the subject of critique by the New Right in the 1980s within a 'discourse of derision' (Ball, 1994) that took the form of an attack on 'progressive' practices and blamed teachers for falling standards. The place of geography in the school curriculum became the subject of public debate in the 1980s when the Secretary of State, Sir Keith Joseph, challenged geographers to justify the subject. Unfortunately, its status as a foundation subject could only be assured by promoting its more conservative characteristics (John Huckle, 1997: 244). At a time when academic geography engaged with diverse philosophies and social and cultural theories in order to explain the contribution of geography to the profound changes which were taking place in the world (Cloke *et al*, 1991; Thrift, 1996), the school subject's professional establishment turned its attention to a reinterpretation of the school subject which seemed to be little informed by these developments (Bailey, 1991). Sadly, only very gradually, it seemed, were geography educators coming to accept the challenge that schools are involved in social reproduction, and as such, should develop the potential for alternative images of social reality in order to challenge dominant ideologies.

nature at the millennium

The ontological separation of space (non-socialised) and nature endemic to geographical positivism continued, however, in varied form within humanistic [where 'nature' 'exists only through its utility for humans'] and radical geographies ['the production of nature' thesis] of the late 1970s and 1980s. While space became more thoroughly socialised, the 'social' in its humanistic and material (class) forms was privileged over the 'natural'. When, however, in the early 1980s theories of 'the production of nature' first crystallised as a simultaneous critique of capitalist exploitation and environmental romanticism 'a broader social constructionism was beginning to seep into the theoretical air of the English speaking academy' (Smith, 1998: 272). Since then, of course, as Smith goes on to tell us 'constructionism has become de rigueur, even passé, and the claim that even nature is socially constructed is anything but shocking' (p. 273).

It was Margaret Fitzsimmons' (1989: 126) critique of what she calls 'a peculiar silence on the question of nature' which provided a most telling indictment of its implications for the more critical aspirations of contemporary human geography. *The Matter of Nature* by Fitzsimmons was one of a series written in *Antipode* during the late 1980s regarding the 'geographical project' and 'what's left to do'. It was a plea for radical geographers to take nature more seriously in their work, a plea restated by Cindi Katz in 1995 in her

review of Derek Gregory's *Geographical Imaginations*. Fitzsimmons identified three contributory factors in geography's failure to 'come to grips with the theoretical problem of nature' (1989: 107): the institutional separation of human and physical geographies, the [continuing] ontological separation of nature and space in human geography, and the urban bias of the intellectual culture which shaped 'radical' concerns.

Since the late 1980s the social sciences including human geography have 'witnessed a reawakening of debate on the question of 'nature'. Wider political and policy imperatives have added impetus to interest in 'nature' on the research agendas of the social sciences. The debate has been animated by intellectual impulses which have broadened the horizons of 'critical' work beyond the compass of Marxism, most significantly through poststructuralist, feminist, post-colonial and environmentalist projects' (Sarah Whatmore, 1999: 23). This has challenged the scientific categorical and conceptual cordon that has marked off 'nature' and the grounds for understanding it (see for example Bordessa, 1993; Cosgrove, 1990; Cronin, 1992; Crush, 1995; Dear, 1994; Demeritt, 1994a and b, 1996; Dickens, 1996; Escobar, 1995; Esteva, 1992; Gandy, 1996; Gare, 1995; Harvey, 1996; Matless, 1991; Redclift and Benton, 1994; Soule and Lease, 1995; Spivak, 1990).

Yet, even as these new energies have put the importance of the question of nature for social science beyond dispute, there has been a tendency to 'add nature in' to already entrenched constellations of 'critical' social science. 'Recent debate has congealed into a stand off between versions of 'social constructionism' in which nature is treated as an inescapably mediated artefact of the social imagination, and versions of 'natural realism', in which 'nature is the bedrock of a 'real' world of substantive entities and objective forces (Soper, 1995)' (Whatmore, 2000: 265). The binary impulse remains significant, even for those laying claim to a 'critical' positionality, whose own stakes in this intellectual territory and in projects of ecological salvation are founded, in different ways, 'on a crucial distinction... between material processes and human relations on the one hand and our understandings of, and communication about, those processes on the other hand (Dickens, 1996: 83). Here, 'nature' can, and must, be recognised as ontologically separate from the 'natures' of social representation in order to sustain the possibility of (and their own pretensions to) a singular analytic-diagnostic truth. Ironically, as Whatmore (1999a) argues, 'this categorical insistence on an either/or, constructionist/realist approach to the question of nature itself echoes the binary mode of thinking that sets up an opposition between 'the natural' and the 'social' as the absolute and only possibilities in a purified world of black and white. For all their loudly declared enmity, these analytic encampments are similarly premised on the acceptance, however unrecognised, of the *a priori* separation of nature and society (p. 24). It is just that such accounts want to exempt themselves from the representational moment, by claiming a privileged correspondence between concept and object, logic and process.

The increasingly challenged dichotomy between the 'social' and the 'natural' has problematised our thinking within geography about the sharp boundaries which we so habitually draw between humans and nature ['non-humans'] and highlights the significance of the discipline to discerning the world in binary terms. The work of Whatmore (1997a, 1997b, 1998, 1999a, 1999b, 2000) and others (e.g. Castree and

Braun, 1998; Katz, 1998; Latour, 1998; Smith, 1998) in trying to glimpse a non-binary world, is part of a theoretical project within the social sciences and human geography which is 'searching for ways out of the impasse between 'constructionist' and 'realist' accounts of 'nature'... a hybrid geography which recognises agency as a relational achievement, involving the creative presence of organic bodies, technological devices and discursive codes, as well as people, in the fabrics of everyday living (Whatmore, 1999a: 26).

Indeed, a diverse, exciting and interdisciplinary academic literature is now emerging which is trying to build theories which 'break out of binaries' and nature/culture modes of thinking of any kind. Human geographers have already taken up the challenge of exploring what Taussig (1993) has called the 'desperate places' in between the 'real' and the 'ideal', the 'natural' and the 'social', the 'objective' and the 'subjective', the 'human' and the 'nonhuman' (p. xvii). This 'hybrid' geographical enterprise seeks to contribute to our collective understanding of how the environments and bodies we inhabit are fabricated at different levels, through multiple relations, by various actors and as the effects of different forms of social power (Braun and Castree, 1998: 5) within reflexive modernity. As yet, it has had little impact on school geography.

If we want to try and glimpse a non-binary world, then as Massey, Allen and Sarre (1999) tell us educationally, 'one of the most significant steps must be to rework our geographical imaginations (p. 7). This involves 'thinking in terms of relations' [relational thinking] - which is not the establishment/recognition of links between preconstituted 'things' but the relational conceptualisation of entities themselves. Relational thinking, querying binaries, recognising specificity will all need to be presented and used here, not on the grounds of containing some objective truth, but as a 'practical means of going on' in terms of accepting the implausibility of a nature 'autonomous' from culture, in thinking about the inevitably and creativity of our relationships with nature, how relationships with nature are differentiated according to gender, class, race, sexual preference and so on, the destructive dynamics embodied in capitalist modes of production, in helping to unlearn the 'instinctive' romanticism which tends to pervade treatments of nature in bourgeois and patriarchal society - in the role of [environmental] education.

My understanding of environmental matters; of the efforts to 'protect', 'conserve' and 'save' nature from the destruction wrought by accelerating socio-economic change; the way that 'nature' is contested, and of nature's social construction, has been drawn out from personal experience and a broad array of literature and disciplines, encountered in the main through human geography, as an undergraduate, school teacher, university lecturer and teacher educator, and now as a PhD student.

Suzanne

Finally I would like to introduce Suzanne. I asked Suzanne to write an autobiography for inclusion in the text - to present herself to others. I asked her to write about her own life experiences, her own understandings and practices as a primary school teacher. I emphasised that her own life experiences were central within the collaboration to an understanding of environment-related curriculum and pedagogy. We

had already talked at length about ourselves to each other. This is what she wrote in January 1995 during the first year of the research project. Nothing has been altered.

It would have been more conventional to include Suzanne's writing through reported speech and to include excerpts from interview transcriptions. That I have not done so was intended to draw attention to the discourses of Suzanne, as well as the writing genre, and to force myself and the reader to reconsider the conventions we take for granted. Those who find the attempt irritating, perhaps factitious, or even plain lazy are asked to consider the source of such sentiments.

Suzanne

I am surprised when I find evidence of work I did with children years ago, even work done on teaching practices in the sixties, that I was doing similar things with children that I would do now. I have taught for 27 years across the primary age range, having obtained a teacher's certificate from Rolle Teacher's Training College in 1967 in Biology and Rural Science. The college course I did was very enjoyable and must have been well thought out and planned when I look back. There was lots of practical, outdoor work. The fieldwork was wide ranging: coastal, estuarine, sand dunes, salt-marsh, deep sea, moorland. The fieldwork and other practical areas of the teacher training course, such as, having to look after livestock, pets and to do gardening, are most memorable to me. I recall my teaching practices with delight in that they were located in wonderful out of the way Devon villages. This change of location seems to have been particularly significant for me, it offered a real contrast to my home area in the East Midlands. I still have strong memories and I'm sure the influence of these years has been enormous. I ought to mention that there were people who also played a part in these important years, not just the location and activities.

The biology and Rural Science group to which I belonged at teacher training college seemed much more committed to environmental causes. I don't remember strong environmental issues being at the forefront in those days, although Rachel Carson's *Silent Spring* was one of our required reading books.

I can't really think of any one person who has been a strong influence in my 'environmental life' – not a person who determined my way forward in the early years. Rather I think I took from people the bits of ideas that I was most interested in at the time. One of the tutors at college was very enthusiastic and influential but by that time I was well on the way along my

chosen path, regarding the environment. Teachers at school, primary and secondary, do not stand put as environmental influences, neither do members of my family.

However, I'm pleased to report that my children are environmentally aware and concerned. Kathlene is involved in various activities in Scotland and she keeps me up to date on issues and ideas.

I'm sure I am a mass of contradictions. As a teacher I feel I can only do so much given the time available. I feel I do more than I should in terms of environmental education considering the statutory requirements of the National Curriculum. But I can always justify what I do to myself, and to others. I have to keep reminding myself that I have other responsibilities, other curriculum areas, the day to day demands of being a class teacher.

Teachers have been shunted along with the national reform agenda, with very little time to stop and critically reflect on what is going on, why it is going on, and what individually we are doing as professionals. I seem to have lost a sense of professional commitment along the way.

I have taught in four schools, having been at my present school for the last 10 years. I currently teach year 6 children, and the class usually has a small number of year 5 children (six in 1994-95). I am the humanities co-ordinator for the school, this includes a responsibility for geography, history, R.E. and environmental education. I am also the trailblazer co-ordinator. The other teachers at school saw me as the environmental education person, and being the humanities co-ordinator they left things very much to me. The cultural traditions of the school have shaped this situation. And I perhaps might do the same in other curriculum areas.

I must emphasise that all the staff, past and present have had a caring attitude and a desire to make the children aware of their environment, locally and globally. To a lesser or greater extent this is reflected in everyday classroom teaching. Myself, I always seem to give my work an environmental base and spread out into other subjects, probably to the detriment of certain areas like music. Other members of staff with different interests and commitments spend less time on environmental education. Some teachers have redressed the balance (if that is what it is) by continuing the ethos and attitude of a positive environmental approach but now deliberately leaving the 'green bits' to me. I can't think of any

staff who haven't supported me in what I do in terms of environmental education.

I have spent years growing things, looking after animals and taking an interest in environmental issues, and always transferred my interests to my teaching. My first head teacher told me to concentrate on the basics, but when I returned to teaching part-time, after having my children, the Head of the new school (who is still there) gave me a morning to teach environmental aspects of education. I covered many areas and spent a lot of time out of the classroom with the children. We became famous locally for our environmental projects and achievements. The Head was always very interested and committed to the environment, especially the local environment. (If I do retire he has already told me I can take on some part-time environmental education at the school.)

At my current school I gradually expanded the type of environmental education activities for several reasons:

- it seemed a natural progression to do so
- it seemed important to me as a teacher to do so
- children had enjoyed the experiences so far
- I had enjoyed the experiences
- I felt I was doing something educationally worthwhile.

Fortunately, my headteachers have always encouraged my interest and commitment to environmental education, and provided the money, resources and time. At my current school we tapped into school funds to buy the incubators, found local sponsors for the tree planting and other school grounds improvements.

I always felt that children left me and Holly Hill at 11 years of age with an awareness of things around them and the potential to develop accordingly. A few do I suppose but I was disappointed recently when I met a group of former pupils in the village and I didn't see that spark, enthusiasm, concern and commitment for their own lives and futures let alone the environment.

I have reached a stage in my life when it seems that everything I have learnt and experienced has contributed to what I do and where I am today. Everything seems to be connected. I am finding this very strange and uncanny. Paths criss-cross and connections are made - even people, or especially people are threaded into this pattern. Many things I have done, experienced and been involved in seem important to me now. Perhaps I

only remember the things I want to - perhaps everyone reaches this stage, perhaps it is the same for everyone. The more I learn, the more I find there is to know. The trouble with being interested in the environment is that there is so much of it! There are very few things I want to know nothing more about - I do often seem to know and understand a little about a lot of things and nothing in real depth.

I am not a great logical thinker, neither do I have deep original thoughts. Generally, I listen and read about other people's ideas and am persuaded or not depending upon the argument. I always feel I do things by instinct, knowing what is right. I suppose everyone thinks the same about themselves.

Many of the educational projects I have been involved in, for example, setting up Thieves Wood Field centre, preparing environmental education teaching materials for teachers (this includes Trailblazer) being involved with the Science National Curriculum and SATS research, acting as a consultant for ATL and now working with you, have greatly enriched my experiences.

In every case I feel I have learnt more than I have given. Working with others of similar interests has been extremely rewarding. For this reason, I cannot just retire early, and turn away from education. I know we all dream of giving up our daily commitments and just pleasing ourselves, and in a way I seek that too - but would I be content with walking the dogs everyday, having time to make and keep the house in a respectable state and getting to grips with the garden? (Even the days out, and holidays, long weekends with friends have not materialised yet.). I do see some of my contemporaries 'finishing off', 'switching off' which I could never do. I still need to be involved, but now in a different more flexible way - with more opportunity to choose, less responsibility overall, and avoiding the 'grind factor' in teaching (the record keeping, reporting, endless meetings etc.). With all the experience and new knowledge building up, I feel I must put it to further use.

Over the years I have established contact with environmental education groups within the county. There existed an Environmental Association in Nottinghamshire which has four sub branches. Each largely consisted of head teachers, career minded individuals and retired teachers who arranged outings to places of interest and gave talks. It is interesting to trace the career paths of these people. I came across

some of them through Trailblazer⁵, and at various meetings and conferences about environmental education.

The western Branch, which I belonged to, decided to provide help and resources for practising teachers and draw together the good environmental work done in the local area. We spent a few years doing this successfully. I suppose my/our type of environmentalism is an introverted brand. We applied our activities to local issues and worked extensively within our own school grounds. We were known within our family of schools and the local area. Until Trailblazer, I suppose I was working in a fairly isolated, but happy and comfortable way. Children enjoyed our efforts to be involved in environmental activities, came to expect to spend time out of doors and appreciated the experiences. I also believe they developed a sense of self-worth, a caring attitude and a desire 'to do' things rather than to sit and be taught/learn in that way.

With Trailblazer I became aware that I was part of a much wider movement and outlook. At this time environmental issues were also very frequently reported within the media – on the news, television documentaries and even radio. The school children also became aware of environmental issues and that they were part of a much wider network. So I can see a progression here. Both my classes and myself widened our horizons. It seems natural to me now - but I have often asked myself - should the transition have occurred sooner. Had I given the children a slanted viewpoint - only from my own experiences and from the local area? Should I have been more concerned with issues, and going beyond the local? On the other hand I suppose I could have continued 'in a rut' doing the same things each year. At least I was changing.

Following on from Trailblazer and my continued working with you, I have been introduced to new aspects of the environment which I suppose I might not have concerned myself with too much - that is global issues and attitudes, different shades of 'greenness', that is environmentalism's, and sustainability. I do keep up with news items and developments in environmental education now - much more so than before. I've always been an avid newspaper person (I was guest editor for a day at the Nottingham Evening post some years ago!), but I look out for the environmental issues even more now. With all this experience I feel I have a greater background knowledge.

I am now asked to be involved with environmental projects because of what I have done in the past. I have the confidence to do these things because of my accumulated experience and because people believe I can do them. I am currently planning a school grounds day for my own school, as well as co-ordinating an environmental project at another local primary school. I also review books and teaching materials of a science and environmental education theme for Scholastic and one or two other publishers. I have also written numerous articles for teaching journals such as the National Association of Environmental Education. and teacher/resource books about Primary Science particularly relating to the National Curriculum.

Ian Robottom has written of the importance of personal commitment in terms of environmental education provision:

There is in my view an undeniable element of personal commitment evident in instances of high quality environmental education. Even in circumstances that do not encourage environmental education, teachers with a personal environmentalist ideology seem to find a way to continue teaching environmental education regardless of imposed organisational changes... One strong message from our research is that most people who are involved in successful environmental education are involved because of personal commitment rather than perceived obligation.

(Ian Robottom, 1996: 51)

Palmer (1993, 1995, 1998; Palmer and Suggate, 1996) has conducted research into what she calls 'emergent environmentalism'. In this work she studies the relative importance of various categories of influence and formative life experiences on the development of environmental educators' knowledge and concern for the environment. Her work clearly demonstrates that teachers of environmental education tend to possess a strong commitment to environmentalism, and that this commitment tends to be shaped by family and childhood experiences outdoors:

The most influential factor in developing personal concern for the environment is childhood experiences of nature and the countryside. In the life stories there were many vivid accounts of early experiences of the natural world, testifying to their importance. The role of the family and other adults in awakening and fostering such interest was another theme in all age groups.

(Palmer, 1996: 119)

Suzanne did not talk much about her 'emergent environmentalism'. The only pointer she gives in her writing and conversations was her experiences of the south west of England as a student teacher. These may be the most significant influences affecting her thinking in relation to the environment – feelings of awe, wonder and mystery, being inspired by the natural world, exercising the imagination and intuition, developing feelings and insights, being moved by beauty etc – what she has since wanted to offer the children she has taught.

I also carried out an activity with Suzanne to initiate discussion about the notion of, and causes of an eco-social 'crisis'. It is an activity that I have used at times, with both ITT/E students and with teachers. Initially each participant writes down on a postcard what in their view is/are the root cause[s] of the eco-social 'crisis'. On the card is written: 'The basic problem[s] is/are'. Each participant then arranges in order of priority a set of card statements which identify various assumed causes of the 'crisis'. The statement cards can be arranged in any appropriate way to represent the importance each participant attaches to the different statements. I hoped that this would enable me to gain further insights into Suzanne's 'emergent environmentalism'. Unfortunately the activity did not really achieve this.

This is what Suzanne said as we carried out the activity:

Suzanne

I don't know whether I am entirely happy with the notion of, the concept of a 'crisis'. The basic problem is selfishness. We are faced with a series of moral dilemmas - in terms of what we do and what we should do, that is our lifestyles and livelihoods. And environmentally it is the same - people seem to have lost a commitment to the environment - everything is too easy, everything is at our fingertips - we are distracted by this 'easy come easy go' consumerism, drawn into ourselves and our own self importance, we cannot see beyond ourselves to important issues such as the environment.

And school and education is not a prescription for the future, just a means to decide their own future. And if as teachers we come up against resistance to this idea, then we simply have to carry on, not in any 'banging a drum' or evangelical way, but in a subtle and concerted way.

I suppose I am a conservationist, but not in terms of things standing still. We need to conserve what we have got, what we have got left in terms of resources and natural environments/landscapes, because there is no going back. Conserve the good things and change the bad. Technological improvements can help here. But I am talking about technological improvements in the right direction. That is: moving forward, finding out, advances in science; such as other sources of energy, alternatives to plastic, sustainable ways of producing things, or re-using them, increased food production and improved distribution - but not in a way that is harmful to the environment. I am all for progress and developments which are beneficial and useful to humankind - but many have gone wrong and at the expense of

the environment. There are advantages and disadvantages to progress, to development.

Imagine there was a tribe of say one hundred people, with no contact with the outside world or the twentieth century, and I was the only person to know of their existence. Would I want to tell them about the twentieth century or leave them alone? As an educator I think I would want to say 'no', leave them alone. But at the same time there is something inside of me, I suppose what you might want to call an ethic, that is telling me that if there was illness or hunger, or some other such major problem, I would want to say 'yes'. In a sense, to attempt to help them, or would it be to 'interfere - through the parts of our experience which could be helpful to them - the better ways of our culture.

For me, I seem to have adopted an overall vision of what I want the environment and the future to be like: an idyllic society-environment relation based on the idea of a 'desert island' scenario or a Scottish island scenario. In a sense I suppose I am going back to the idea of 'wilderness', but recognise very few if any places on the Earth are still wilderness. But I am not looking for a perfect environment, untouched by humankind. I would want to take with me certain comforts and possessions - the basics to live in a small cottage (sustainable - self sufficient?) books, pen, writing paper, stamps and a radio to hear the news (at least initially) and of course my husband, but not the children they are grown up now and have their own lives. The other aspects of our material existence I think I would be happy to cast aside. In a sense I suppose this is my environmental ethic.

Imagine a desert island or a small Scottish island. For a long time now I have often thought how lovely it would be to retire from it all and go and live on a desert island or a Scottish island. I would want something useful, something positive to do, such as writing books; particularly children's fictional stories with an environmental message. I would also quite like to do some research on specific environmental issues. I would then send all this back to 'civilisation'. But this would be on my own terms. In one sense, I would feel guilty about going. There would be many tensions, especially the notion of abandoning spaceship Earth; just escaping, running away! But I would go now. In a sense it is the ultimate privileged position for me - choose what you want to take and leave all the 'nasty things' behind. I think I

would feel a need for contact with the 'other' world, initially - with 'civilisation'. A radio would be sufficient. But eventually news from afar would not be so important, though I would want to know about advances in science and technology; how these were improving society and hopefully the environment. I wouldn't want to know who was Prime Minister and so on.

By 'no going back', I mean there is no going back to a primitive, to a primeval society. In today's context I mean no going back to a pre-car society. I would want to focus on possible solutions, or possible improvements, through science and technology. A number of things come to mind here. One would be the need for population control. I would want to place a strong emphasis on environmental economics, give this a high profile. The important thing here is to emphasise the consequences of our actions. Green lifestyles would also be an important focus, and the movement towards sustainability. But if people do not want this, are not happy with my focus, I cannot dictate to them - they have to see things for themselves. If my agenda was not acceptable I would need to find alternatives, that are more attractive, more viable for people.

I have not been used to examining what I do in such great detail. I must always have worked on my instinct in the past. I like the fact that the class is mine and I can see my influence on them over the year. I have always aimed to give my class a kind of corporate identity achieved by doing things together which they will always remember.

Notes

1. Or rather, invite/persuade the reader into an appropriate subject position.
2. This refers to a theatrical stage, or any platform or rostrum where social action takes place and can be disclosed. It is not a reference to linear time - stage/phase 1, stage/phase 2 etc.
3. See Appendix 1 for a summary of the main phases of the research studentship.
4. The first modern thinkers who specifically and institutionally were practicing geographers, with recognisable, organised theoretical views, are conventionally taken to be Alexander von Humboldt and Carl Ritter. Peet (1998) describes them as 'transitional thinkers caught up to differing degrees between premodern religious mysticism and modern scientific theory' (p. 12).
5. Trailblazer was a Nottinghamshire LEA initiative, involving pupils on a voluntary basis, and concerned to promote environmental education in both primary and secondary schools. It was a project-based award scheme of learning activities for pupils at key stages 1-3, a record of achievement in environmental education, and also a network of local expertise. Each participating school had a trailblazer co-ordinator. The scheme facilitated communication between schools on environmental education via the school co-ordinators, and gave schools access to a primary and secondary trailblazer co-ordinator. The primary and secondary co-ordinators were seconded (2 day a week) teachers for a 12 month period. Suzanne took on the role of primary co-ordinator in 1995-96.

Co-ordinates of analytic practice in a more reflexive 'modernity': the nature of construction

Let me assert from the start, that the demanding and rigorous procedures of research should not be wasted on trivial pursuits. Social research should be about understanding and improving the world.
(Bassey, 1995: 4)

We shall not think that by being 'scientific' or 'philosophical' one genre of writing can attain an 'objectivity' which another, 'literary', cannot.
(Rorty, 1982: 174)

When van Gogh paints sunflowers, he reveals, or achieves, the vivid relation between himself, as man, and the sunflower, as sunflower, at that quick moment of time... The vision on the canvas is a third thing... It is neither man-in-the-mirror nor flower-in-the-mirror, neither is it above or below or across anything. It is between everything.
(D. H. Lawrence)

The illusion of pure scholarship is as understanding without the possibility of social improvement...
(Bunge, in Unwin, 1992: 161)

Intellectual controversy and uncertainty is the chronic condition of the post-modern world... Educational research, no less than any other academic disciplines, has in recent years been influenced by this wider discourse and the epistemological uncertainties it has produced. There has been a lively and sometimes agitated debate between the traditions... about its status and forms of inquiry... Any discipline which is not critically re-evaluating the very foundations of its work, and whether 'foundations' are any longer possible, is vulnerable to the charge of intellectual closure and ossification.
(Ranson, 1998: 528)

Social events and not social systems should be our concern in any examination of the human world. Such events are always situated in and brought forth by human actions within a human domain or space; they are never stable because they constantly generate responsive actions that differ from the events that elicited them. This background of human practices (linguistic and non-linguistic) is what corresponds in the human sciences to the structural coupling in the natural world.
(Varela, Thompson and Rosch, 1991: 37)

The near daily media accounts and scholarly books documenting the rapid destruction of the world's ecosystems now add a greater sense of urgency for clarifying the role that education can play in the development of more ecologically sustainable cultural patterns.
(Bowers, 1993: x)

What happens to analysis and politics when the familiar identities of modernism – Nature and Society – are no longer taken as givens? What if in their place exist only imbroglios in which science, politics, organisms, religion, law, economy, technology and so on are mixed together in a skein of relations so dense, so entangled, that it is no longer possible to assign objects to either pole – Nature or Society. Such imbroglios challenge the very foundations of modern epistemology as well as social and political theory.
(Braun and Castree, 1998: 169)

The emergence in recent decades of a diversity of epistemologies of science and social science within a more reflexive modernity means that educational researchers, in rejecting the positivist view of social reality and methodology for examining this reality, are faced with an expansive propagation of contending ideas that raise serious questions regarding the legitimacy and authority of analytic practice. Gone are the

days when educational research would be considered worthy simply because educationalists possessed a unitary method for discovering 'truth'. This presents both challenges and opportunities for environment-related educational practitioners/researchers, at a time when, without doubt, there are increasing expectations of education as a key agent in social change towards more sustainable ways of living.

There is perhaps now a general concern, as Nigel Hoffman (1994) claims, that environmental educators:

do not unconsciously carry into new philosophies and methodologies the very dysfunctions which led to our environmental problems in the first place. Consequently there has been a search for paradigms of knowledge and enquiry which are adequate for the problems that we face, paradigms which recognise the essential interrelatedness of all forms of life and the fact that enquirers are themselves part of environments, not just external observers as it was considered in classical rationalist science.

(p. 71)

The social and intellectual changes taking place can be seen to challenge the core assumptions on which education, as a process of enlightenment, is currently based (Huckle, 1997: 95). John Huckle (*ibid.*) identified a key question for environmental education research: what philosophies, incorporating what ontologies and epistemologies, methods and methodologies, best enable us to understand the relations between the natural and social worlds and thereby educate for more sustainable futures? Following Braun and Castree (above), what does happen to analytic work in the sphere of education when the familiar identities of modernism – nature and society – are no longer taken as givens?

In an attempt to begin to answer the above questions, in the sections to follow, I highlight a number of distinctive self-understandings of post-prefixed analytic workers in terms of which they make sense of what they are doing, define their cultural identities and legitimise their social role – think the networks and mediations of nature-society/culture complexes in a more reflexive modernity. This is done to establish my own position.

I argue that there are good aesthetic, historical and political reasons why the 'nonhuman', the non-social' should not be excluded from our accounts of the construction of identity and knowledge. At the same time, I stress that such an incorporation needs to be reflexive and circumspect. This concern with the 'nonhuman', the 'non-social' has been expressed by other analytic commentators as well, especially those drawn from critical realism. Indeed, 'one of social constructionism's most immediate contenders is [critical] realism' (Shotter, 1993a: 65). Along the way, in the sections which follow, I emphasise some of the points of difference, conceptual and political, between a particular form of social constructionism [artifactual constructionism] and the endeavours that fall under the generic rubric of critical realism. It is important to discuss it here, as many see in critical realism, a clear alternative to social constructionism. For although now many analytic workers espouse social constructionist *theories* of social action, few are prepared to endorse a thorough going social constructionist *methodology*. They claim it is irredeemably committed to an 'anything goes' relativism, a fate that critical realism, with its separate accounts of ontology and

epistemology clearly seems to avoid. However, my concern in this chapter is less to adjudicate the epistemological status of science than it is to use the debate to clarify what is at stake in the practice of science and the social construction of nature.

science, social constructionism and nature

'Modern science and its technical creations have become ubiquitous, indeed indispensable, if also largely taken for granted, aspects of everyday life – at least in the developed world. Yet despite this success, because of it in fact, the sciences are met with increasing public unease and scepticism' (Demeritt, 1998: 173). This public questioning of the sciences is a characteristic of what Ulrich Beck (1992) describes as the emergent 'risk society'. Beck *et al.* (1994) argue that these processes of reflexive modernity tend to structure conditions in which narratives of 'uncertainty' and 'risk' become dominant as a consequence of the penetration of all aspects of the 'social' and the 'natural' by the activities of expertise. Whereas previously industrial society was organised around the application of scientific knowledge for the production and distribution of [uneven] wealth, now according to Beck (1992: 19-20) the defining feature of contemporary society is the distribution and management of hazards such as global warming, loss of biodiversity, and deforestation that result from techno-economic development itself. As the chief cause of these modern environmental problems as well as the medium of [their] definition, and the source of solutions (p. 155), the sciences occupy a controversial and contradictory position in the risk society.

For Giddens (1990) human existence is not necessarily more risky under contemporary social conditions, but, rather, the origins of risk and uncertainty have changed. He argues that, 'manufactured risk' is the result of human intervention into the conditions of social life and into nature (p. 4). Moreover, 'what was supposed to create greater certainty – the advance of human knowledge and 'controlled intervention' into society and nature – is actually deeply involved with its unpredictability' (p. 3). The 'uncertainties and opportunities' which are a consequence of the 'advance' of manufactured uncertainty' are 'largely new' (p. 3). For Beck *et al.* (1994) this 'paradox of human knowledge' (p. vii) is central to processes of reflexive modernisation. Beck's notion of the 'risk society' provides a useful starting point from which to begin to consider recent controversies about science, social constructionism, nature and education.

Against this backdrop of uncertainty and contingency, and to the extent today, that scientific knowledge is woven into every level of the social fabric and political life, it is not surprising that there is fierce debate over what it tells us, and what authority it should be granted. Much current debate has centred on 'social constructionism' [or 'constructivism']¹. The controversy, until more recently, has been commonly staged in simplistic either/or terms such as science/anti-science and realist/constructionist, with 'a variety of cultural critics who emphasise the socially contingent manner in which scientific knowledge is constructed against self-styled defenders of science, many of them practising scientists themselves, who uphold a more conventional understanding of science as the progressively more accurate explanation of a real, independent, and pre-existing natural world' (Demeritt, 1998: 174). We need to shift debate away from

these caricatures. In its various forms social constructionism poses fundamental questions not just about the foundations of scientific knowledge, not just about public trust and scientific credibility; the concern is also about social power and legitimacy, which is one reason why the furore has been so heated at times.

social constructionism and environmental education

For some the linkage of post-structuralist discourses with environmentalism is misplaced and is far more problematic than is widely acknowledged. Matthew Gandy (1966; 36) sees this as stemming primarily from the inadequacy of poststructuralist and postmodern epistemologies for the analysis of the causes of environmental problems by cutting off social discourse from physical reality, and thereby denying the independent agency of nature. This reveals, Matthew Gandy claims, important weaknesses in the conceptual strength and analytical clarity of contemporary postmodern thought (p.23).

For others post-structuralist discourses and environmentalism are of great significance to each other:

In the middle of the nineteenth century Karl Marx argued that only rarely and under quite special conditions is a society able to adopt a critical attitude towards itself. The situation we are in is one of those quite special conditions in which not merely a society but the whole of modern civilisation is being forced to adopt a critical attitude towards itself, a critical attitude even more profound than the critique by Marx of capitalism in the nineteenth century.

(Gare, 1995: 2)

Arran Gare (1995) emphasises that a postmodern ecological critique of modernity involves many of our established taken-for-granted beliefs and practices about science, nature, society/culture, the self, truth and reality being questioned as never before.

Noel Gough (1997: 159) states bluntly that environmental education should be less concerned with 'nature' than its cultural invention and suggests that we need to recognise and problematise our participation in the cultural narratives and processes that produce our understandings of 'nature' and 'culture' and mediate their interactions (p.145). Gough's (1991, 1997) proposal for a new direction in environmental education based on a poststructuralist thesis, what Nigel Hoffman describes as an emphasis on the 'social aspect of the construction of knowledge' (1994 p. 72) is for Hoffman 'inadequate to serve as a basis for an environmental education of the future' (*ibid.*)².

The philosophy and method of critical evaluation which goes by the name 'constructivism' declares itself to be a way which can lead us beyond the mistakes of earlier theories of knowledge... rather than being a way beyond rationalism and positivism, the constructivist approach is entirely bound up with that which it seeks to criticise, even if it assumes a radical posture.

(Hoffman, 1994: 71)

The reductionist tendency of poststructuralist epistemologies, Hoffman claims, revolve around *our* needs, *our* stories. 'Where there are no 'true' points of reference beyond oneself, the only responsibility can be to

oneself, to the fulfilment of one's needs' (Hoffman p. 73). What can I [we] ever 'know', he asks 'about the needs and potentialities of plants, rocks and animals' (p.74).

Nigel Hoffman (1994: 74) uses the words of Noel Gough and turns them back on Gough. How can one say in the same breath that 'the objects, elements and meanings that constitute our 'existential reality' are social constructions and also that there is a global environmental crisis (Gough, 1991: 32-4)?' If social constructionism abandons the idea of 'truth' and a 'reality' that can be directly apprehended by human beings, how can we be justified in saying that the deterioration of the global environment is one of the major issues facing humankind today? Can social constructionist epistemologies and the twin methodological aspects of reflexivity and dialectics³ ever provide any 'real' [Hoffman's original emphasis] criteria 'for improving the world, for protecting the environment?' (p. 74) Or is 'socio-ecological crisis' not just another discourse, just another way of looking at the world.

theorising social constructionism and the material world

Gitlin (1994: 203) urges us to avoid the use of the terms 'constituting' and 'constructing' reality, as they are dramatically overused jargon terms which began as useful correctives, but quickly curdled into cliché - misleading cliché at that. He continues:

The unexamined use of these terms presumes that life experience amounts to nothing but the language and institutions of the milieu. Likewise, to say that identities (for example, woman or homosexual) are 'constructed' in history catches the truth that labels shift and categories come and go, but is frequently stretched so far as to presume that they are constructed *out of thin air*.

(p. 203-4, original emphasis)

The concerns of both Gitlin and Hoffman trace the principles of constructionism/constructivism 'to the neo-Kantian separation of the human subject and the unknowable 'thing-in-itself' (Hoffman, 1994: 71). Kant (1781) believed that the 'truth' of the external world cannot be 'out there' in the objects, he came to doubt that we can know anything about the world directly even though our thinking may intuitively 'correspond' to it in some way. Their criticisms are not directed at the relationship between knowledge and human subjects in historical contexts, but the reductionist tendency of constructionist thought: the implication that knowledge is *nothing but* a human discursive construction.

In its strongest Neo-Kantian forms discursive constructionist accounts reverse the causal relation between representation and things of the world that modernism assumed, such that science 'constructs', in an ontological sense, the world it represents. This, as David Demeritt has suggested, has had unfortunate results, since it allows both the 'self-styled defenders' of rational science and others [such as Hoffman] to 'dismiss 'constructionism' as either absurd or polemic. The academic debate over social constructionism is considerably more complex and multifaceted than the often glib dismissals suggest. Accounts that get lumped together into the 'social constructionist' category are much more diverse than their detractors

acknowledge, in particular the textual emphasis of the deconstructionist current as against the performative emphasis of various theories of embodied practice.

In this chapter I seek to shift debate away from caricatures, and to argue for a material or 'artifactual constructionism' (Sismondo, 1993) which attempts to hold an ontological realism consistent with an epistemological agnosticism, and to locate the question of nature more squarely in the 'middle ground' (Bruno Latour, 1993) of social practice. In many ways this is the approach science-as-practice analytic workers such as Bruno Latour (1987, 1993) and Donna Haraway (1991) have taken. In their critique of epistemological realism, they 'have shown that what counts as nature, and nature's remaking, occur within networks that include social, technical, discursive *and* organic elements simultaneously (Castree and Braun, 1998: 6; author emphasis).

Sismondo (1993) identifies four distinct uses of the construction metaphor, each describing a different object of construction. First, there is what he called social object constructionism. This refers to the construction, through the interplay of actors, institutions, habits, and other social practices, of subjective belief about reality that over time 'congeals for the man (*sic*) on the street' into a 'taken for granted reality' (Berger and Luckman, 1966: 3). Similarly, in terms of science, realists take its practical and technical success as proof of the objective truth of scientific theory. But there are problems with this abductive argument for epistemological realism. The standards of empirical adequacy that define 'successful working' and prediction are themselves socially determined norms and not given self-evidently as data by the nature of reality itself.

Some feminists have been among the most enthusiastic proponents of social object constructionism. They distinguish sharply between gender, the subjective and socially constructed beliefs about sexual difference that constitute a changeable, but no less real, 'social reality', and sex itself, the biological given, immutable material reality of those differences. Social object feminism preserves the ontological distinction between a social reality of human making (gender) and an underlying material reality not of human construction (sex) that provides the epistemic basis for distinguishing true and objective scientific knowledge from subjective and socially constructed belief. In the analytic hands of some feminist critics, social object constructionism provides a way to expose sexist bias in science without having to give up on the ideals of science as a means of exposing the objective reality of women's oppression.

A second variety of social constructionism according to Sismondo (1993) is social institutional constructionism. Much of the work of this type has been historical, tracing the social pressures influencing the conduct and direction of scientific research. Even professed opponents of social constructionism acknowledge that these are legitimate subjects for social science research, for they speak to the ever present problem of 'bias', which a rigorous scientific method is designed to 'weed out' of science. Like social object constructionism, the social institutional form is what David Bloor (1976: 4-5) describes as

asymmetrical. It distinguishes sharply between, on the one hand, the properly sociological explanation of the social context for particular scientific discoveries or incorrect beliefs, and on the other hand, the explanation of scientifically valid knowledge, which is largely unquestioned. As a result, both object and institutional forms of social constructionism, are not inconsistent with epistemological realism and the claim that scientific knowledge is true and objective because it describes the world as it in fact really is, quite independent of any human volition or activity.

By contrast, a third variety, artifactual constructionism maintains that the objects of scientific knowledge are the outcome of carefully contrived practice, not pre-existing objects waiting to be discovered and correctly represented by science (Hacking, 1983; Latour, 1987; Haraway, 1992). This poses several challenges to epistemological realism. In common with empiricist arguments against epistemological realism (Van Fraassen, 1980), artifactual constructionism deflates the sense of metaphysical truth on which realism depends. For artifactual constructionists, questions of abstract truth are undecidable, if not altogether meaningless. The criterion for success for scientific theory is empirical adequacy and pragmatic achievement, not ultimate truth or falsity.

By emphasising the productivity or constructedness of scientific knowledge and practice, artifactual constructionism also denies the sharp break postulated by realism between reality and scientific descriptions of it. Latour and Woolgar (1979) articulate the criticism this way, 'it is not simply that phenomena depend on certain material instrumentation; rather the phenomena are thoroughly constituted by the material setting of the laboratory. The artificial reality, which participants describe in terms of an objective [i.e. existing independent of human agency] entity has in fact been constructed...through material techniques' (p. 64). The so-called real world against which the truth of a particular scientific representation might be tested can only be grasped through other representations, because reality appears as such only as a condition and result of the specific, productive activities of its representation (Demeritt, 1997).

Artifactual constructionism as used here is both a theory of knowledge or epistemology and a way of knowing [a situated-relational⁴ way of knowing]. At the same time, it is quite clear that artifactual constructionism does not view ontology in any traditional sense, it does not make any statement about the [pre-existent] nature of reality. It is a useful approach which does not deny the ontological existence of the world, but instead emphasises that its apparent reality is never pre-given; it is an emergent property that 'depends upon the configuration of practices within which [it] becomes manifest' (Rouse, 1987: 160-1). This Heideggerian insight is a difficult one. As Neil Smith (1998) has pointed out, 'there is an inherent danger that such a delicate artifactual constructionism will devolve into some kind of neo-Kantian idealism' (p. 276) – a position that is ontologically realist about entities but epistemologically anti-realist about theories/discourses/stories (the things we call 'atoms' are real objects, they do exist, but our ideas about them are constructed) may slip into a much stronger use of the construction metaphor that is anti-realist about both theories and entities (atoms have no objective existence; our belief in them as social objects is

what gives them their apparent reality). Although it is rarely identified as such, it is this neo-Kantian approach that is more often than not the presumed target of anti-constructionist attacks.

This much stronger neo-Kantian (Sismondo, 1993) sense of the metaphor is the fourth variety of social constructionism. For example, Steve Woolgar (1988) uses social constructionism in the very strongest and most literal sense: the social construction of the objects of scientific thought and representation. This form of constructionism reverses 'the presumed relationship between representation and object, [claiming] that representation gives rise to the object' (p. 65). From this perspective, the actual nature of reality plays no part in determining our beliefs about it. This 'methodological relativism' allows the apparent independence of the natural world' to be described as something 'granted by human beings in social negotiation (Collins and Yearley, 1992: 320). It leads to the polemical conclusion of Collins and Pinch (1993, quoted in Mermin, 1996: 11) that 'the truth about the natural world [is] what the powerful believe to be truth about the natural world'.

This neo-Kantian strand of social constructionism, not surprisingly, has drawn fierce criticism and is currently in political trouble (Eagleton, 1986, 1989; Norris, 1990, 1992; O'Neill, 1995): for its apparent slide into 'absolute' relativism, occasioned by an 'uncritical adherence to a theory of language and representation whose extreme anti-realist or sceptical bias in the end gives rise to an outlook of thoroughgoing nihilism' (Norris, 1992: 191). It is seen as 'irrational', in that it refuses to acknowledge any objective criteria for scientific validation. I do have some objections to this strand myself, in particular, by denying the natural world any role in constraining scientific knowledge of it, neo-Kantian constructionism seems to suggest that nature is whatever science makes it out to be. This makes it difficult to understand how science could ever fail or a scientific theory be invalidated. But I am not in agreement with Norris, who like Eagleton and O'Neill argue that the ills inherent in post-prefixed 'theories' of discourse can be cured by a dose of Bhaskar's (1989) [critical] realism. I cannot agree [see below], though I do want to note that, in all its varieties (Harre, 1986) critical realism is born out of an attempt to provide a principled solution to the dilemma of language/representation and reality.

Instead, the position I consider is somewhat different from critical realism positions, which advocate, in one way or another, an invariant real, however problematic it might be to access, which escapes construction. The strand of social constructionism I want to pursue, artifactual constructionism, as I have already made clear above, takes a more two-sided stance towards language/representation and reality, and attempts to open up a new discursive space. This discursive space is concerned with the development of a vocabulary of *relational* terms to show that it is possible to give an account of *both* how human beings are constituted as unique individuals by the nexus of relations [human and non-human] within which they are embedded, *and* how, as thinking, individual persons, they are also able to contribute to the transformation of those relations.

the limits of realism

Ultimately the issue of scientific 'truth' (objectivity) is not a very interesting one. It tells us little about whether a particular scientific theory works or why. And yet the debate about scientific realism and social constructionism has been fixated by the notion of objective knowledge. Realists uphold objective truth in terms of an invariant real, and neo-Kantians deny it, by collapsing the realists' dualism into a single, socially constructed monism, thereby conflating anti-realism about scientific theories and the epistemological claim that the grounds for representation are arbitrary and socially constructed with anti-realism about scientific entities and the ontological claim that reality itself is made up. Realists dismiss this out of hand as absurd, which it is, but their dualism is no less problematic. Focused on a social ontology and a somewhat non-reflexive scientific methodology, they underscore the fact that [this] reality is only ever realised as an artifact of scientific representation, by invoking in a set of principles an invariant real in an attempt to identify ahead of time the structures of social life.

Realism (Bhaskar, 1989; Greenwood, 1992; Parker, 1992) has been concerned to posit the existence of a transcendental (or intransitive) ontological realm of causal generative mechanisms, which is irreducibly distinct from the transitive realm, the epistemological domain in which the world is 'observed' or 'described', but not in any simple positivist/empiricist sense. Rather, critical realists are generally willing to acknowledge that such 'data' is constituted through social practices. The formulation of separate and explicit ontological and epistemological dimensions, and the non-human nature of this ontology rests on an acknowledgement of what Bhaskar (1989) and Outhwaite (1987) recognise as an *epistemic fallacy* that pervades much philosophy of science. While 'interpretive processes are a significant part of what goes on in the social world, and... our access to the social world is necessarily via our understanding of these interpretive processes, it does not follow that this is all that exists, or can be known to exist' (Outhwaite, 1987: 76). In other words 'while our knowledge of the world is a social product, produced by transformational social activity from previously existing knowledge, the being of the world must be conceived as of (at least at the moment of its scientific investigation) as existing independently of our thought about it. For only if this is so can we discover our theories of its nature to be wrong, thus making a scientific investigation of its *reality* a genuine possibility' (Shotter, 1993a: 66).

The realists position is that realists accept that 'knowledge is a social and historical product...[and] that there is no preinterpreted 'given' and that the test of truth cannot be correspondence' (Manicas and Secord, 1983: 401). Nevertheless they insist that:

it is precisely the task of the sciences to invent theories that aim to represent the world. Thus in the spirit of Kuhn...the practices of the sciences generate their own *rational* criteria in terms of which theory is accepted or rejected. The crucial point is that it is possible for these criteria to be rational precisely because on realist terms, there is a world that exists independently of cognising experience. Since our theories are constitutive of the known world but *not* of the world, we may always be wrong, but *not* anything goes.

(*ibid.*, original emphasis)

In other words the complexly structured nature of Bhaskar's, Outhwaite's and Greenwood's proposals for the conduct of research can be seen as issuing not from an empirical knowledge of successful research [and the world], but from the nature of their *talk* about 'causal powers' and 'generative mechanisms' 'which must be analysed as tendencies, manifested as empirical invariances only under specially contrived closed conditions' (Shotter, 1993a: 70).

The aim is to allow for the possibility of understanding the world in order to change it: 'the world cannot be changed unless it is adequately interpreted (Bhaskar, 1989: 5). The point of the theoretical undertakings of critical realism is to *underlabour* - at different levels and in different ways - for the sciences and the social sciences, in so far as they might *systematically* illuminate and empower the project of human self-emancipation. The critical realist project is fundamentally the belief in the possibility of emancipatory sciences. But do descriptions in terms of 'causal powers' and 'generative mechanisms' (clearly, humanly made entities) give a 'properly' radical role to the natural, that is nonanthropomorphic aspects of social activities and human agency? In other words, as Shotter asks (p.74) 'is Bhaskar's realism realistic, and also, is it properly naturalistic? Like Shotter, my answer to both parts of this question is 'No'.

Like Shotter (1993a) I question 'whether the kind of (Lockean) philosophical underlabouring he proposes -- to do *prior* ground clearing which represses embodied agency and textual practices -- is necessarily a way-station on the route to human self-emancipation, or whether other forms of underlabouring might not be more suitable -- as toolmakers, say, *during* actual processes of construction, or as rhetoricians, say, *afterwards*, either to persuade others of a constructions worth, or to dissuade its critics' (p.67).

The rhetorical moves that Bhaskar, Greenwood, Outhwaite and others use can be comprehensively deconstructed (see for example Potter, 1992) to show how it is possible to ensure that 'realism remains one good story' (p. 172). Their accounts preserve a particular vision of what proper scientific knowledge is, and the kind of professionalised science-based society in which its production is privileged. As I see it, the trouble is that a realist rhetoric authorises a way of talking about certain 'things', 'entities' and 'structures' -- when no such things, entities, structures as such may actually exist (Manicas and Secord, 1983: 411). Indeed, as Manicas and Secord themselves state it, the advantage of the approach 'is that it allows scientists to *believe* that they are grappling with entities that, although not directly observable, are real enough (p. 412, emphasis added). 'It allows scientists to warrant a way of talking about human mental phenomena as if they consisted in things like powers and competencies with describable underlying structures' (Shotter, 1993b: 98).

Such rhetorical moves show that the discursive work of critical realists remains necessarily entrenched in the messy transitive world. This is in keeping with [other] social constructionist responses which contest the 'analytic usefulness' of an intransitive dimension. I prefer to retain a focus on the messy transitive world, as this is, to put it crudely, where the [only] action is (Fay, 1990; Shotter, 1993a, Stenner and Eccleston,

1994). Furthermore, in treating language as primarily representational-referential, realists ignore its rhetorical power (see below). Artifactual constructionism focuses upon the powerful and productive practices by which the truth of representation is realised and produced. This is long overdue. However, the focus on the transitive world does not necessarily render social constructionism averse to positing some sort of real. I have endorsed a reflexive situated realism which is based on the ontological privileging of the interactional situation (human-nonhuman-conversation-discourse nexus).

The analytic focus on the transitive world, however, requires theory not in the [realist] scientific sense of explanatory theory, but what Shotter has called 'practical-theory' (1993b: 225), what Thrift (1996, 1999) terms 'non-representational' theory, which is theory in Wittgenstein's sense (1958: no. 122), that is, in terms of 'perspicuous representations' that produce 'just that understanding which consists in 'seeing connections'. 'But this can only happen if we stop looking at things in the usual way. And this is difficult' (Thrift, 1999: 296).

The difficulty – I might say – is not that of finding a solution but rather of recognising as the solution something that looks as if it were only a preliminary to it...this is connected, I believe, with wrongly expecting an explanation, whereas the solution of the difficulty is description, if we give it the right place in our considerations

(Wittgenstein, 1958: no. 27e)

Giving the right place to description, which in turn can provide a place for the understanding of nature-society/culture I want to construct, is the task of what, I termed in chapter 1, non-representational theory (after Thrift, 1996, 1999).

a social ontology of formative activities and a relational ethics

My argument is that scientific knowledge depends upon the human relationships described so insightfully by the work of social object and institutional constructionists, but it also depends upon a variety of nonhuman actors. While scientific knowledges are figured in culturally specific, and materially significant ways, they are 'about' something more than just society/culture. The difficulty becomes in acknowledging the active role played by the objects of scientific knowledge in shaping or constraining this knowledge without falling back into some epistemological realism in which true knowledge is said to reflect the world as it is ontologically (pre-) given.

Artifactual constructionism provides a way out of this dead end. It refigures the actors in the construction of what is made for us as nature and society. The 'social' in these social constructions is not just 'us'; it includes other humans (as we usually acknowledge), nonhumans and even machines, and other non-organic actors. Artifactual constructionism provides a way of acknowledging that these other agencies 'matter' without taking the particular configuration of their matter or the process by which it is realised for granted (Butler, 1993). This makes it possible to talk about science, knowledge and nature without recourse either to the objective and ontologically given 'Nature' of epistemological realism or to the omnipotent and all-

knowing 'Society' of neo-Kantian constructionism. Instead, artifactual constructionism focuses on the powerful and productive practices of science by which the reality of nature and our socially constructed knowledge of it are produced and articulated, thereby dispelling the modern dualism on which the debate about science and social constructionism has turned.

Science appears differently once we abandon the argument [illusion] that it must either be a purely objective reflection of the world or an entirely subjective construction of it. Questions about scientific representation and correspondence to an external and ontologically given natural world give way to questions about scientific practice and the mediated relationships among humans and their ever-active, non-human *relational* others in the social production of knowledge and nature. Artifactual constructionism makes this relational dynamic, these interactions visible. It makes it possible to interrogate the culturally specific knowledge and ways of being that scientific interventions in and reconfiguration of the natural world realise and produce. Humans are not the only actors in the construction of the entities of any scientific discourse. The objects of scientific knowledge are co-constructions. This makes them no less real or materially significant. It simply highlights the complex and relational process of scientific practice and representation by which they are materialised and produced for us as natural-technical objects of human knowledge.

Artifactual constructionism is a relational (material) rather than discursive version of social constructionism which attempts to move 'beyond representationalism'. Non-representational thinking denies 'the efficacy of representational models of the world, whose main focus is the 'internal', and whose basic terms or objects are symbolic representations, and is instead committed to non-representational models of the world, in which the focus is 'external', and in which basic terms and objects are forged in a manifold of actions and interactions' (Nigel Thrift, 1996: 6).

Here, the distinction between a *representational-referential* strand of social constructionism and a *rhetorical-responsive* strand (Shotter, 1993b: 13-14) is important. The representational-referential strand focuses upon 'already spoken words'. This strand is influenced primarily by the writings of Ferdinand de Saussure (1960), Jacques Derrida (1976) and Jean-Francois Lyotard (1984) and emphasises language as working in terms of already existing, decontextualised systems of conventionalised meanings or usages, characterised either by systems of differences, or in terms of rule-governed language games. In the second, what John Shotter calls the rhetorical-responsive strand, the emphasis is on 'words in their speaking' (Shotter, 1993b: 14). This strand is influenced by the ideas of Wittgenstein (1953), Vico (1965, 1968), Bakhtin (1986), Vygotsky (1986), Billig (1987, 1991) and others, and emphasises the unique, social, relational functions of situated language use. This strand assigns a crucial role to the use of language, not just as a communicative device, but as a rhetorical-responsive means to 'move' us in our feelings, to change our perceptions, to create a sense of *commitment*. Language is a communicational, conversational, dialogical and persuasive way of responding to others (including nonhuman others) and ourselves.

The notion of already existing systems of language 'induces in us a misleading *realism*, in the sense that it commits us ahead of time to a particular way of thinking about our topic' (Shotter, 1993b: 59). Shotter goes on, 'the narrative power of a well-crafted text makes us feel that we already have a clear concept of the kind of thing we seek, when in fact the opposite is the case. We find it difficult to accept that our as yet unknown 'objects' are not in some primordial sense *already there*; we fail to notice that our sense of their 'reality' has been 'developed', not by reality imposing itself upon us, but by our 'making sense' of them from within a discourse' (*ibid.*).

Such talk of language systems suggests also that everything of importance is already in existence (within the system) somewhere. This hides from us, or at least makes it difficult to recognise, the reality of development [construction], and the possibility of creativity; we fail to real-ise the still incomplete nature of what it is we describe/represent. 'But, finally, and most importantly, such talk fails to take the problematic nature of people's relations to their surroundings seriously. If we are not related to each other and our surroundings in certain already established ways, but we can and do make contact with each other, and with our surroundings, in a whole multitude of different, *self-constructed* 'ways' (according on some occasions to how we already believe we ought, morally, to be related), then the form of these contacts is essentially *unsystematisable*' (*ibid.*).

This means that between people and their surroundings are 'gaps' or 'situations' of an uncertain kind, third entities between us and the [human and non-human] others around us' (Shotter, 1993b: 9). It is in these 'gaps' or 'situations' between people and their surroundings, within these diffuse, only partially structured boundaries, or interfaces of everyday life, that I suggest, in line with Shotter (1993a and b) and Ingold (1990) life-form is created. It is here that society/culture is 'appropriated' from nature, and social/cultural products are reappropriated by nature in becoming embodied. 'Life cuts across the boundary between organism (people) and environment (Ingold, 1990: 217). Such a view [of 'gaps' or 'situations'] involves 'not the establishment/recognition of links between preconstituted things, but the relational conceptualisation of entities themselves...which are precarious achievements' (Massey *et al.*: 1999: 12). This is to argue 'for an understanding of the world through the real making of the networks through which it is constructed' (*ibid.*); and produces an orientation to the other, which Shotter (1993b: 9) argues is necessarily ethical. In Shotter's rhetorical-responsive account a careful emphasis is placed on self-other [human and non-human] relations. Shotter (1993a and b) and Ingold (1990) are committed to a highly *situated* and *relational* view of human life and language use. My concern in terms of social constructionism is with this rhetorical-responsive strand - the actual 'formative' or form-giving [situated-relational] moment - which is always a *hybrid* enterprise, concerned with studying the living rather than the abstract spaces of social life, configured by numerous, interconnected agents or actants, both human and nonhuman.

The trouble is, however, given the nature of our current analytic practices (especially those of a realist scientific kind), this is not easy to do. For it is *de rigueur* to begin with clear and systematic definitions, to

move in analysis from the simple to the complex, while all the time checking for objective accuracy and completeness. Thus all our claims to knowledge must be formulated as positions *within* well-established, systematic discourses which, if we follow Saussure's (1960) account of language, consist only in systems of differences. 'In other words, our current analytic practices mislead us: they allow us to formulate 'positions' but not the 'formative activity' occurring between them related to their own development, maintenance, or change' (Shotter, 1993b: 60). We end up with sciences only of decontextualised things or events (Ingold, 1990: 224), whereas what is required Ingold (1990) suggests, are *relational* formulations:

formulations which not only take into account *both* differences and relations, but which also take *time* seriously. For everything living is not just constructed from pre-existing components, but grows within a bio-socio-historical context, and constitutes its own component parts from within the development of its own form.

(Shotter, 1993b: 60)

The introduction of relational formulations is not an easy task, 'it is not a merely theoretical matter, a gestalt switch is also required at a *practical* level, in not just our own common-sense, taken-for-granted forms of thought and perception, but in our actions and practices, too' (*ibid.*). For, as many writers have made clear (Geertz, 1983, Taylor, 1989, Massey *et al*, 1999; Cook *et al*, 2000), the view of the individual as always already existing as an isolated, bounded, unique, organised centre of awareness, action and motivation, set apart from other such unities, within an already existing social and natural environment with which it must deal, is a taken-for-granted aspect of the liberal-humanist ideology of our times.

In summary, the claim of critical realists that ontological and epistemological talk must be distinguished, I think, must be upheld by social constructionists, if they are to be critical constructionists. But differently from critical realism, I have tried to describe the nature of an ontology derived from the interactive relations of ordinary, everyday social life, and from contested conversational events, rather than from the conditions of possibility required for a 'rational' scientific methodology. Instead of a 'things' ontology I have argued for an ontology consisting in an 'ecology of moral formative activities'. That is I have articulated a theory of artifactual constructionism that is sensitive both to the cultural politics of scientific representations [of nature] and to the independent, if also ineluctably framed and socially mediated reality [of nature].

The consequences of recognising that knowing requires a situated-relational knower, largely depend upon how we understand or interpret the un-making of the subject-object binary. This is part of a 'successor science' (Sandra Harding, 1986), part of 'growing up in our attitudes toward science' (Fine, 1986; quoted in Lather, 1994: 36) in an era characterised by the loss of certainties and absolute frames of reference. In challenging the status and neutrality of knowledge and its relationship to 'real objects' I do not imply [a discursive] *relativism*, nor *immaterialism*. If, in no longer seeing 'pure' entities, interactions and causation this makes the practice of science seem more problematic than it once did, it makes it no less essential for making our way in the world. It moves us away from simplistic dualistic thinking. Instead, artifactual

constructionism focuses upon the powerful and productive practices ('networks', 'meanings' and 'mediations') by which the truth of representation is realised and produced.

responding to Nigel Hoffman's questions: relational thinking

I now want to return to Nigel Hoffman's questions. How can one say in the same breath that the objects, elements and meanings that constitute our 'existential reality' are social constructions and also that there is a global environmental 'crisis'? Can social constructionist epistemologies and the twin aspects of reflexivity and dialectics ever provide any 'real' criteria for improving the world, for protecting the environment? (p.74).

Some readings of social constructionism (postmodernism, poststructuralism) would seem to confine texts to themselves, locking them up in the 'prisonhouse of language' (Valentiene Cunningham, 1994). Language is proposed as *self-referring*, and so are texts. So history, the world of things and people, the varied outside of texts; context, gets *deferred*. In writing this, I am not looking for an escape route to a place outside language, or into metalanguage, from which definition of the varied outside of texts is turned back on itself, as if it were a reality to which words correspond, and its essential characteristics could be named. But my argument is that the *referral* [interaction, *relation*] does matter - the simultaneous connection and difference, between text and context, word and world, signs and places, the textual and the human, the textual and the non-human. We are never simply 'inside' or 'outside' a text (Jacques Derrida, 1984:111). It is my argument that it is the simultaneous amalgamation of word-stuff and world-stuff - this doubling of reading/writing [word] and more than reading/writing [world] - *wor[l]d* - that is the condition of all research/theory/writing. Although we can experience the real, knowing it (in the sense of experience having meaning and significance) is only possible by representing it through a culturally located signifying system. But, in representation, the real is not simply being reflected 'as it really is' but is being constructed or shaped in a way particular to the signifying system and *also* in *relation* to the real.

My direct response to Nigel Hoffman is, therefore, to say that I am arguing for a relational conception of social life that takes up the now common emphasis on *situatedness* or *positionality* but which also insists on *interaction* in an effort to disrupt the binary terms in which the question of nature has been posed. It is a conception of *being-in-the-world* which accepts that there is no 'outside' from which to speak or act. The geographical imaginary of inside versus outside has been strong in Western culture, but is being increasingly questioned, and is questioned here. As Tim Ingold (1995) has observed, 'something must be wrong somewhere, if the only way to understand our own creative involvement in the world is by taking ourselves out of it' (p. 58). These emphases imply an epistemological insistence on the situatedness of all forms of knowledge and a 'modest' ontological stance (Law, 1994) rooted in the everyday practice or performance of being, as against some abstract order attributed to a rationality which understands itself as located outside or above the social fray.

It is a radically different understanding of social agency in the senses both that agency is decentred, spun between human and nonhuman actors rather than a manifestation of [abstract] unitary intent, and that it is decoupled from the subject/object binary so that, as Nigel Thrift (1996) has put it, 'the material' and 'the social' intertwine and interact in all manner of combinations (p. 24). It means developing what Thrift (1996, 1999) and Massey *et al* (1999) have termed 'relational thinking'. 'Relational thinking is, in part, an attempt to reimagine the either/or constructions of binary thinking (where the only relations are ones of exclusion) and to recognise the important elements of interconnection which go into the construction of any identity' [object] (Massey *et al*, 1999: 12). Sarah Whatmore (1997, 1999a, 1999b, 2000) has set out the task, showing 'how it involves, not the establishment/recognition of links between preconstituted 'things', but the relational conceptualisation of entities themselves. She argues for an understanding of the world through the real making of the networks through which it is (she argues) constructed; that entities themselves are precarious achievements' (Massey *et al*, 1999: 12).

For environmental educators, this implies a kind of imaginary that 'recognises *social agency* as a relational achievement, involving the creative presence of organic beings, technological devices and discursive codes, as well as people, in the fabrics of everyday living' (Sarah Whatmore, 1999: 26). The kind of imaginary to ponder the epistemological foundations of a curriculum germane to a more associational conception of reality. Not abstract relations then, but practised relations, which are themselves relations of power, which prompt us to revise the closed thinking that currently sets the standard for knowledge in education, and is often associated with the borders and boundaries drawn around social practices – which act as if they were the last word on the subject.

Environment-related educational practices need to develop accounts of nature and culture/society 'based in a *relational materialism* which depends upon conceiving the world as associational' (Thrift, 1999: 317), to move beyond a type of binary thinking that traps us in a world of absolute rather than relative distinctions. Braun and Castree argue that 'analytical and political hope lies precisely in tracing 'networks' and 'mediations' where previously we saw only 'pure' entities and 'interactions'' (1998: 169.)

I make as explicit as possible the 'ontological situs' (Wellek and Warren, 1949; in Cunningham, 1994: 4) of my analytic work in terms of artifactual constructionism. I have found the words of Valentine Cunningham (1994) particularly perceptive and persuasive in this respect. I quote him at some length.

Text has become *the* terminological football of recent criticism. (p. 4)

Books and articles with *text* in their title have spawned in multitudes. (p. 4)
Text preoccupies us. (p. 4)

It has become the cant term of cant terms. (p. 5)

We live according to America's... philosopher Richard Rorty, in an era of *textualists* and *textualism*. (p. 5)

Texting is what writers and critics are all about nowadays. In some [post]structuralist opinion, texting or textualising is what every individual, every institution, every society, certainly every movement of thought does, simply. (p. 5)

To *text*... was, according to Derrida, a necessary coinage: the times demanded it (p. 5).

What is the meaning of a text is what we still demand to know. (p. 5)

We are specialists in... texts, declared Derrida in 1984, addressing an audience of critics; but he added, texts of all sorts. (p. 5)

It goes without saying - which does not stop it being said repeatedly - that the days of ... seeing the other as in itself it really is... are past. But, of course, the collapse of old critical confidences and the welcome afforded to our postmodernist chaos make the question of the nature of text more, rather than less, urgent. And central to the issue is, still, the question of where texts - any texts... - stand in relation to the world that frames them and their utterers. (p. 6)

A 'literary' person, or at least the published version of her diary, rather wittily, if unwittingly, provides us with a very nice clue, I think, to the relationship between word and world. (p. 6)

There is, however, no getting away from the authorial hand and voice... outside the text, and particularly not in the detective story in the diary. The repeated I...I...I...I...of Virginia Woolf thrusts that worldly presence upon us. This is emphatically a text that knows itself as a text, but it is *also* a text about the world of London shops, London fog, Christmas shopping, female shoplifters, male and female store detectives...(p. 10)

And the key word in that last paragraph is *also*. For this text is a curious, arresting, even puzzling amalgam of word-stuff and world-stuff. It is certainly neither all of the word nor all of the world. And it is the argument of this book that this amalgamation of word and world is the condition not just of Virginia Woolf's writing but of all writing. It is the condition of all language, and so of all things made out of language. And this little narrative - at once so strikingly a writing, about text, and sited so vividly in a context of text and texts, but also so emphatically about the knowable, touchable world of city streets, shops, possession, persons who exist outside of narrative... grants us a key word for the doubling, ambivalent, even duplicitous condition of its so mixed existence, its very fraught ontology. (p. 11).

For, describing her unaccustomed, bruising *entrée* into the world of the thieving underclass, the criminal underworld - I was admitted to the underworld. (p. 11)

And, for us, the readers, access to this particular bit of the underworld is only to be effected through contact with Virginia Woolf's words about it - what we might call her *underwords*. But the underwords of this text are also about, of, even in, the underworld. The words about the underworld are vividly present, but through them, so is the underworld they bring to us. (p. 11)

Both - words and worlds are present. And neither presence is possible without the presence of the other. Both items in this reading-writing transaction, the word and the world, exist only by courtesy of each other, because both consist, for the reader, in each other. They are coterminous, coextensive, coexistent. (p. 11)

It registers the *wordiness* of what Virginia Woolf wrote, it acknowledges the *worldliness* that the words encounter and inscribe, and it produces a new nonce-word, a very *bon mot* indeed, to register the awkward and persistent duality of language - made of both wordy and worldly things and not absolutely either the one or the other. *Wor(!)d*: the word is

mightily expressive for my purposes, a very apt sign for what I'm arguing is the continual co-presence of world and word, word and world, at every moment, in every text whatsoever, however extremely it might at first appear that a particular writing had been able to shed the one and consist only of the other. (p. 11-12)

That this place where words and worlds converge is a risky place (is acknowledged by many *texts* of Virginia Woolf, as it is by her *life*.)

There is no either/or, only a combination, a doubling... wor(l)d. (p. 59-60)

My argument is that we not only need not choose, but that rigorous analysis will not allow us to choose. Meaning arises at that duplicitous, slippery place where apparent opposites conjoin, so that both of the connecting, opposed sides of that border must inevitably get taken and be read and interpreted conjointly. This is the logic of the betweenness of writing...(p. 60)

of works of art, that Martin Buber has classically endorsed. Art is neither the impression of natural objectivity nor the expression of spiritual subjectivity, but it is the work and witness of the relation between the *substantia humana* and the *substantia rerum*, it is the real of 'between' which has become a form. (p. 60)

Environmental concern, amongst other value issues, alerts us to the possibility of certain imperious motives holding sway within modernist conceptions of 'rationality' and traditional scientific knowledge. It thus raises fundamental questions not only about what kinds of knowledge best serve environmental problems, but also the nature of educational knowledge itself - how it is acquired and how it conditions our outlook. This has led me to seek a reconstruction of the paradigm of the 'rationalist project' by imbuing it with more receptive and response motives towards both nature and human nature.

For the moment I allow the words of Valentine Cunningham to 'speak for themselves', other than to say these illustrations are offered in the belief that it is indeed necessary and important to engage with the perpetual 'being-ness' of reality. Texts present meaning as arising in the busy overlap, interaction, clash between the two (Valentine Cunningham, 1994: 61). 'Geographers have already taken up the challenge of exploring what Taussig has called the 'desperate places' in between the 'real' and the 'ideal', the 'natural' and the 'social', the 'objective' and the 'subjective', the 'human' and the 'nonhuman' (1993: xvii, in Whatmore, 1999: 25).

At present this is a world of pluralist and unequal voices clamouring to be heard; a world of representation coloured by demonstrative affectation; a world where popular appeal in academic circles is to subjectivity, but a subjectivity that has on occasion allowed *materialism* to slip from view; and, in some circles at least, a world where 'insider' politics has become an end in itself. In some recent writing in the social sciences and education a certain anxiety can be detected about some of the more precocious swings of the postmodernist pendulum, and what this means for *practice*. In this text, my concern is the intersection and simultaneity of multiple material and discursive practices.

To take a social (artifactual) constructionist position is not to deny the independent reality and condition of 'nature' and the 'environment' at all; or to deny the seriousness of the threat faced by our planet. Rather, it focuses on the ways in which 'nature' and the 'environment' are textualised in technocultural discourses on the social, cultural and political, by which environmental conditions are defined as being 'unacceptable', 'risky' (Ulrich Beck, 1993) or 'problems', and thereby actionable. Demonstrating that a problem has been socially constructed, is not to undermine it, or debunk it. Similarly, social constructionism, as formulated here, does not deny the independent causal power of 'nature' but rather asserts that causality is not given self evidently as data by the nature of reality itself. In arguing for social constructionism, I simultaneously resist the submersion of the world by words.

Such considerations lead me to suggest that in environmental education we need to attend more closely to the politics of situated life - it is the conviction of the urgent political necessity to bring seemingly abstract 'global problems' down to earth, to the scale of people's lives (Bunge, 1979: 170). We need to participate more fully, self-critically and reflexively in the social practices and cultural narratives within which identity, nature and knowledge are artifactually produced.

validity

The emphasis on the actual practice of the various sciences, physical as well as social, highlight their specificity and situatedness and the practice-constituted criteria for judging the validity of knowledge claims and theory choice. This serves to emphasise both the constructed nature of research and its constructive or 'world-making' power through language, discourses and texts.

I have crafted this text with the hope that readers will find what I have to say educationally significant. More specifically these hopes are sevenfold:

- I hope my value positions are clear. They have changed over time. Educational values are not always fixed entities. They shift and move and change in character and emphasis as we develop and as we are buffeted by the turbulence of educational change.
- I hope you feel that this is a committed post-prefixed account. I use the word 'committed' because I want to convey to you a sense of some of the things I have really been concerned about and committed to in my professional practice.
- I hope you feel that you have an understanding of the complexity of the environment-related educational practice of Suzanne as an agent of societal reproduction and change, contextualised in terms of 'good pedagogy' in environmental education within 'reflexive modernity'
- I hope you feel that you have an understanding of the 'social practice' of research
- I also hope that what I say here is useful to you in some way, that my text has the potential to make some impact on your thinking about environment-related educational practice and committed research

- Related to this I hope some of you might feel empowered to act, to do something as a result of reading this text
- Finally, I hope you feel that you can trust my text.

I would like you to judge the validity of my claim to know with reference to these seven aspirations.

I address the issue of validity at various points in the text. I also address the validity/reflexivity/meaning problematic by attempting to support the claims I make with evidence drawn from my practice and from the work of others. I also make the following observations here.

I have argued for the idea of research as a practice in which the self is engaged as a reflexive practitioner, 'together with the related idea of research as a practice which is both scripted (i.e. dependent on existing discourses) and inscribing (i.e. potentially producing new discourses)' (Usher, Bryant and Johnston, 1997: 212). And like Usher, Bryant and Johnston (1997) I understand the purpose of research as reconceptualising what research and its purposes are - of 'overstepping the implicit yet powerful limits set by mainstream research traditions/paradigms (p. 191); of going 'beyond the limits of what is known, to offer new 'facts' and explanations and, in the case of post-prefixed approaches, to question their grounding in conventional epistemologies and practices of inquiry' (p. 212). Griffiths (1998) understands the idea of 'overstepping' or going 'beyond the limits' of research in terms of producing 'better knowledge in two senses of 'better': knowledge which can be relied on and knowledge which can be used wisely, to a good purpose' (p. 129). For Griffiths this is the concern to get improvements in social justice, in and from education. To this I would add improvements to the condition of environments. In consequence traditional definitions of validity and reliability need to be altered.

Like Griffiths (1998), Usher, Bryant and Johnston (1997) and Gitlin (1994) I reject the idea of research being detached and the view that its purpose is to simply find out about the world. Instead, I understand research as being about acting to change the world rather than just knowing it, to know it in the service of changing it. I argue for a particular kind of educational research practice – what I have termed 'committed' research (after Griffiths, 1998). Such research starts 'the process of educational research with a set of values that guide decisions about *what* is researched, and *how* and *why*. In other words, it is about taking sides and getting change in education through educational research' (Griffiths, 1998: 3, original emphasis). I also identify the practice of research as itself constructing and constructed with a consequent need for a problematising reflexivity. Does such a position bias research?

'Bias is something to be avoided in any paradigm of research. All researcher's try to avoid it, because all researchers hold to common values that are internal to *any* research process' (Griffiths, 1998: 130). These are values related to impartiality, coherence, criticality, openness and painstaking use of procedures. But not surprisingly, there is disagreement among researchers about what counts as impartiality, coherence and all the rest. These values are often discussed in technical terms, such as validity and reliability, but again, there

is considerable disagreement among researchers about what counts as validity and reliability. I argue that 'without some acknowledgement of initial opinions, beliefs and values, the research will certainly be biased. The point here is to note that opinions, start, but do not end, the research' (Griffiths, 1998: 130).

In offering ways at getting at the 'truth', no methodologies are innocent. A central problematic for any researcher is that of validation. Of whatever type, research methodology texts provide a vehicle for inducting practitioners into particular research paradigms. As Usher, Bryant and Johnston (1997) point out, 'it is something of a paradox that, in explicitly scripting the practice of research in approved ways, methodology as text does not draw attention to itself' (p. 214). Research as a practice is often depicted in ways which ignore the reflexivity of the researcher as a sense-making agent.

Social and educational researchers commonly think about bias and validity in terms of both internal and external validity. 'Internal validity refers to the coherence and consistency of a piece of research, and in particular how well the data presented support the researcher's conclusions. External validity, on the other hand, refers to whether the findings are generalisable to other research or social settings' (Tonkiss, 1998: 259). I deal with external validity in chapter 4 when discussing the case study approach.

It is important to consider Griffiths ideas here, as her notion of 'committed' research has helped to shape my understanding of the research project described in this text. Griffiths (1998) argues that bias in research can appear at three levels:

1. bias within any specific research process in terms of the rigorous use of procedures and criticality
2. bias related to the values and politics of the researcher which inform which of these procedures are followed
3. bias in the wider context of research.

These three levels correspond, roughly, to the categories of technique/method, methodology and epistemology – in relation to power/knowledge (p. 130).

There is a huge range of techniques and methods used in educational qualitative research at all stages of the research process. There are different ways of collecting data, and of analysing them; and there is a range of techniques used in writing up the analysis and reporting on the research. All of these are subject to general principles of research with respect to avoiding 'bias' and working towards validity and reliability in the use of evidence (even though the precise meanings of the terms 'bias', 'validity' and 'reliability' are themselves always in question). Using general principles is not enough, however, as Griffiths points out. Any techniques need to be applied and interrogated using the principles of social justice. Here, openness to perspectives and reflexivity about the positionality of the researchers is particularly important.

The need to take one's values and politics seriously has implications for any researcher. Values and politics affect the choice of techniques as well as details of how they are used. They also constrain the choice of methodologies, such as action inquiry, action research, ethnography or philosophical research etc. Finally, and obviously, values and politics affect the researchers' stances to their chosen methodologies. Taking an explicit stance helps to reduce bias, unless the stance is one of neutrality. In stating one's perspective the reader is able to judge how to take them into account in assessing the knowledge they produce. The stance of neutrality is different. Unlike other stances, it claims that it is the only possible representation of truth and knowledge, just because it is (it claims) neutral. But bias comes precisely from that representation, because it has the effect of hiding, not interrogating partiality.

'Face validity' and 'respondent validity' are related terms that are often invoked in the analysis of qualitative data. Again, there meanings are open to interpretation. 'Face validity' is one way of assessing whether the findings are 'really about what they appear to be about' in terms of 'what seems reasonable' (Robson, 1993: 66). This is also known as 'descriptive validity' (Hitchcock and Hughes, 1995: 105). This is the extent to which the research describes what, in fact, the study set out to do and whether this description is 'accurate' and authentic'. They go on to say that very often research is judged in terms of the apparently 'soft notion' of face validity: do the descriptions ring true? Do they feel right? (*ibid.*). Face and descriptive validity connects and overlaps with 'respondent validity', which is validation by taking data and analysis back to the subject/co-researcher to check their accuracy. Hammersley (1995) recognises this in terms of being 'plausible' and 'credible'. From the perspective of social justice the question raised is: whose judgement counts? To whom, exactly, should it seem 'reasonable', 'plausible' and 'credible'?

Questions about the validity/quality of research are not exhausted by giving satisfactory answers to questions about whether the research has been carried out well, its coherence and consistency. There are also questions related to power-knowledge: questions of the effects of the way research is used, and the meanings that are attached to its results. Dealing with this 'wider' context is largely beyond the power of individual researchers in relation to their own projects. However, there is value in reflexivity here. While I have been considering individual research within a framework which has emphasised how context-bound any researcher is, some of that context is, the educational research community itself. All educational researchers are members of this community, and in acknowledging it, have some room for manoeuvre within it. This is important because of the influence this context has on the possibilities of working for the environment and social justice.

In relation to research as a scripted practice Usher, Bryant and Johnston (1997) suggest that there are three aspects to the problematic of validation: pre-validation, internal validation and post-validation (p. 215). Pre-validation occurs at the stage of the research proposal when an acceptable account of the intentions of a research project has to be provided as a prerequisite to securing the conditions to engage in research in the first place. This is a particularly important issue in relation to funding proposals, and as Usher, Bryant and

Johnston (1997) suggest the concern is to construct oneself as a 'credible' researcher. In terms of PhD research proposals the concern is more with 'credible novice' researcher. The concern is to gain assent at the 'pre-validity' stage by playing a particular discursive game, that is, for research to demonstrate in the text of its proposal, that it fits into a particular canon and can contribute to the furtherance of its knowledge. Internal validation refers to the actual conduct of the research itself as following the precepts of appropriate practices with respect to data collection and analysis. The key here, they suggest, is the production of a text which is self-validating in so far as it follows the formal rules of enquiry established. I hope I have established these in this text.

Post-validation emphasises that research texts must prove acceptable to a community of readers. It seeks to inhabit a particular disciplinary domain and is the product of a particular habitus. Research is therefore scripted to be acceptable to 'anonymous' referees (experiences practitioners acting as 'guardians' of the domain) and thereby to the canon as a whole. Usher, Bryant and Johnston (1997) suggest that through the above processes, the researcher is both a scripted and scripting practitioner and also a risk-taker and stakeholder. S/he has a personal interest in the outcomes of research in terms of how it is read by others. One can say, therefore, that researchers are contributing, through their own practice, to their discursive formation and confirmation as particular kinds of practitioners – a nice Foucauldian example of the disciplining of the self through self-discipline'.

The influence of the research 'process' on who produces knowledge, the type of knowledge produced, who is seen as 'expert', and the resulting changes at the level of personal and institutional practice are part of an expanded political view of validity. The role of research in establishing authoritarian and 'methodical' relationships that silence individuals and particular groups and limits reflexivity would all be threats to validity as I have defined it. Research practices should be allowed not only to evolve within a particular research study, but also to change given the needs and priorities of a particular population. There have been significant change in the way that we think about and conduct research. I have tried to emphasise and enact a move towards a more 'reflexive social practice' approach to research, where conversation, analysis and action become moments in a continuous endeavour. This iterative give and take between questions, conversation, analysis and action differs from traditional research methods – and gives more weight to the social practice. To facilitate this practice those participating create texts which present aspects of self, other, context and wider cultural norms. I return you to my seven criteria.

Notes

1. I use the term 'constructionism' rather than 'constructivism', though the words as Gergen (1985, in Burr, 1995) points out are sometimes used interchangeably (as Hoffman does). My concern in using the term 'constructionism' was to distinguish the social from the perceptual/cognitive aspects of knowledge construction. 'Constructivism' encompasses a range of perceptual/cognitive theories, sometimes with links to Piagetian theory, which have their origins in behaviourist and individualistic perspectives. 'Constructionism' or 'social constructionism' on the other hand, encompasses a range of sociological and psychological approaches to the study of human beings as social animals, and in particular is influenced by poststructural and postmodern discourses. While the distinction made between the social and personal construction of knowledge is, as Hoffman suggests one of emphasis, they are aspects of one and the same process; unlike Hoffman I would argue that making the distinction is important, in that the problem with constructivism is that it has an underlying essentialist and evolutionary metaphor for the development of the mind. But Like Hoffman I am critical of the reductionistic tendency of both constructivism (emphasis on the individual) and constructionism (emphasis on the social) as styles of thinking which define knowledge as '*nothing but*' a human creation. Social constructionism, in its commonly understood Neo-Kantian form, in privileging the social, has underscrutinised the concept, and ignored the role of nonhumans and the non-social in the construction of identity and knowledge.
2. Nigel Hoffman's concern to go 'beyond constructivism' is an attempt to establish a Goethean approach to environmental education. By way of the ideas of Nietzsche and Heidegger he argues for a more 'authentic mode of individualised being' based on an organic conception of knowledge. 'The aim of the Goethean phenomenological approach is to learn to engage with or participate in the phenomena we encounter in environments so that our creative activity, in whatever form it takes, can come to be authentic, to work in partnership with nature... not just through 'feelings', nor the accumulation of 'facts', but through the cultivation of the qualitative intuitive form of knowing which may be called 'cognitive perception'' (p. 80-82). Here knowledge (in its 'eidetic' [after Husserl] or phenomenological form) or 'the idea' is understood as 'not merely a subjective construction but something real and inherent in the form of the thing, apprehensible when one attains what Edmund Husserl called an 'intuition of essences' (Reinhardt, 1960: 123; in Hoffman, 1994: 80-81). While I am sympathetic, in part, to Hoffman's use of Nietzsche and Heidegger, like the critique of Husserlian/existential phenomenology within human geography in the late 1970s-1980s, I am concerned about the arrogance of any theoretical position which claims to show others 'how things are in themselves'. The concern with 'authenticity' in Hoffman's Goethean form of phenomenology, in terms of 'what is the meaning of existence' is for me unanswerable, for it assumes something more meaningful than existence itself, something beyond being. In this sense, Hoffman's Goethean phenomenological approach is problematic because it is essentialist, even metaphysical.
3. Nigel Hoffman describes this as disputation, argumentation - with others in a group, in order to collectively fashion a new construction which has as much consensus as possible and meets a particular need. He is using the term in a Socratic or Hegelian sense rather than a Marxist one. The analytic weakness of a Marxist dialectics is strongly emphasised in the work of Noel Castree (1996), Bruce Braun and Noel Castree (1998) and Sarah Whatmore (1999) and their discussion of the interaction of culture and nature. They emphasise how a Marxist dialectics, far from challenging [such] *a priori* categorisations can be seen to raise its binary logic to the level of a contradiction and engine of history - and explains my need to explain Hoffman's use of the term.

The collaborative research project: background, methods, getting started

Those who are at home in the world of ideas and theory usually have never experienced the creation of a setting. They are interested in what is, has been, and should be, but they themselves have rarely, if ever, put themselves in a situation where the centre of action has moved to the creation of what should be where they will experience the problems as participants rather than observers, and where theory and practice take on new relationships.

(Sarason, 1972: 183; in Borthwick, 1982: 383)

There is an underlying argument in what follows that case study has an important contribution to make to the whole development of educational research, particularly insofar as ... practitioners are to become more fully engaged in it.

(Golby, 1994: 10)

It is as if one imagined that photographs told the unadorned real truth without ever noticing how they were constructed. Their images, after all, are framed, taken from particular angles, shot at certain distances, and rendered with different depths of field.

(Rosaldo, 1987: 3)

The aims of this research project have already been stated in chapter 1. This chapter is concerned with the planning, design and operation of the collaborative research project, and associated issues.

The work described took place from September 1994 to July 1996 in a single primary school to the north west of Nottingham. The research project was predominantly school based and I became what David Oldroyd and Tom Tiller (1987: 15) describe as a researcher in residence for at least 2 days per week over the two year period. For the first few weeks I worked with three teachers: Suzanne, Francis and Hazel, but all too quickly this was soon reduced to one, namely Suzanne. As co-researchers our own experiences are grounded in our realities as white, middle class, heterosexual female and male.

Entering into any kind of inquiry *with* other people is necessarily a complex and sensitive undertaking, and it is neither possible nor desirable to pre-specify exactly what will need to be done to capture what is important in these complex professional-life situations. Therefore the actual foci of the study developed during the period of research, but they were always centred on issues of curriculum development and pedagogy in terms of environmental education, our own professional development as educators, and inevitably, change through collaboration.

I understood research as a means by which people can engage together to explore some significant aspects of their lives, their professional activities and responsibilities, not just to understand it better, but to improve their actions within it, so as to meet their purposes more fully in relation to the things that matter in life.

The basic assumption behind the research was that professional capabilities can be enhanced when practitioners in collaborative settings become more reflexive in their practice and create the means for

looking at the situation in which they act as a prelude to modifying both. As stated in chapter 3, to be reflexive is to have an ongoing conversation with each other and ourselves about experience while simultaneously living in the moment - constant and intensive scrutiny of 'what I know' and 'how I know it' (Hertz, 1997: viii). Shulamit Reinharz (1992) argues that reflexive research combines material on the way the researcher(s) *gained* knowledge of the field or case with discussion of how the researcher(s) attributes became meaningful in the course of the research. Reflexive research does not simply report 'facts' or 'truths' but actively constructs interpretations of the researchers experiences and then questions how these interpretations came about. In this particular case, this involved trying to bring the meanings of our collaborative actions in the complex socio-cultural milieu of school and university into the open where these meanings could be examined and also shared. If I wanted to give this style of research a label, I would describe it as being in the reflexive, feminist ethnographic action inquiry tradition, underpinned by a relational approach to the definition of 'reality'.

While this form of collaborative school-based action inquiry emphasises the need to understand practitioners own perspectives on professional life and curriculum innovation, it also allows for the possibility of practitioners challenging the conditions and constraints that sustain their professional culture. As such, this research tradition was unfamiliar to the teachers.

case study

As stated in chapter 2, one of the three main stagings for the research and the educational stories of this text is a case study. This case is a study of a teacher and a teacher educator trying to work together within an action inquiry, located, in the main, at the teachers' primary school; and it presents the events, actions, relationships and inevitable compromises of the attempted collaboration. Following Bassey (1999) it is both a story-telling and theory-seeking case study (p. 62).

The case study approach has been very much a central feature of qualitative research in social science disciplines over the last century, and more recently in education. Case study is now widely accepted as a form of research, both in its own right and as an element in large-scale research designs. As a consequence the term has come to mean different things to different people. Such wide use over a long period of time suggests that they are valuable, yet their use has not been without criticism (Roberts, 1996: 135).

There has long existed within some areas of the academic community opposition to the idea of case study, in particular, on the grounds of problems regarding scientific generalisation and a lack of rigour, and also because they take too long and result in massive unreadable documents (Yin, 1994: 10). While refuting these accusations, Yin admitted that 'good case studies are very difficult to do' (p. 11).

Case studies are very various. There are many different types and a range of purposes which they attempt to fulfil. Numerous writers (including Adelman, 1980; Simons, 1980; Stake, 1994, 1995; Walker, 1986; Yin,

1993, 1994) have identified particular broad styles or categorisations. Clearly the generic term 'case study' has a range of meanings (see Michael Bassey; 1999, for a recent consideration of what case studies are and their use in educational settings). There is always some danger in using well-worn terms like case study. All such terms carry 'excess baggage' around with them, meanings and resonances from those previous usages. There are, however, some common characteristics of 'case study' as used in educational research which are worth identifying:

1. The major characteristic of a case study is the concentration upon one particular instance, unit or 'case'. What that particular instance or unit is, is of course the intellectual heart of the research (Golby, 1994: 12). There is no obvious limit on the kind of particular thing a case may be. The contemporary phenomenon, that is 'the case', can be virtually anything. An individual teacher, pupil or parent may be a case. So too might a class, a department, a school, a whole LEA, or in this case a developing collaborative relationship between two professional people within which to ask questions about 'good' pedagogy in environmental education. The organising principle involved is the isolation of a set of events, actions and relationships which are appropriate to cases of that kind. The situation is the main source of information about the case.
2. The case has, or develops, a focus within the unit of study, over a defined period of time. It is not exhaustive; a case study is selective in that it cannot deal with every issue to a case.
3. The case is studied at a particular time within a particular social, economic, cultural and political context, which needs to be taken into account when interpreting the case study. Case study research has to relate the particularity of the case to the generality of the context.
4. The case is bounded by the researcher's or co-researchers' interests, by the theoretical assumptions she/he or they bring to the inquiry, and by the constraints of time and resources under which they worked.
5. The case is studied in detail 'within its real life context' (Yin, 1994: 13) rather than in some contrived experimental setting. The concern is with rich and vivid description

Although the content of a case study is determined by the boundaries suggested in the characteristics above, these boundaries are never as clear as the list suggests. The researchers' construct the case as the research develops. The final case study is a construction rather than an object which has been studied.

Yin usefully summarises these features as follows. A case study is an empirical inquiry that:

1. investigates a contemporary phenomenon within its real life context; when

2. the boundaries between phenomenon and context are not clearly evident; and in which

3. multiple sources of evidence are used.

(Yin, 1994: 23)

While Yin's writing tends towards the positivist (or scientific) paradigm, such a definition has two major merits. First, it makes clear that what distinguishes a case study is principally the instance or object to be explored, not the methodological orientation used in studying it (Stake, 1994: 236). Many methods are possible within a case study. It draws eclectically on the whole range of research methods used in educational research (Miles & Huberman, 1984), qualitative and quantitative, based on need. Second, that case study is inquiry in a real-life context, as opposed to the contrived contexts of experiments or surveys. The 'case' in case study research is, therefore, paramount, and is a productive vehicle for presenting committed research, as I argue below.

Paul Atkinson and Sara Delamont (1985) denounced case study approaches within education [evaluation]. Their attack was directed at the particular characteristics of case study research identified above. Their concern was that 'the unit of analysis (case) can in practice mean just about anything' (p. 29), they also suggested that 'case study writers often seem in danger of reinventing the wheel, what is worse, they seem rather slapdash wheelwrights at that' (p. 32). They also considered that case study evaluators (in particular those at CARE at the University of East Anglia) had a deliberate commitment to an 'anti-intellectual or anti-academic tenor' (p. 34). They sensed a laudable intention 'to demystify the activities of research workers, to eliminate the sense of an elite and remote cadre of evaluation experts' (p. 35), but argued that such a 'denial of theory and method is, we believe a denial of responsibility for one's research activities and conclusions (p. 37). They also believed that among case study researchers 'a concern for ethics too often supplants equally important issues of theory and method (p. 37).

The arguments of Atkinson and Delamont (1985) are not unimportant. In response to their concern that 'the unit of analysis (case) can in practice mean just about anything' I refer the reader back to chapter 2 where there is an explicit and detailed account of how I have structured this particular case in terms of stories and stagings. Concern about reinventing the wheel and a slapdash approach are dealt with throughout the text, in the sense that the text should exemplify the ways in which it counters such claims. The problematisation of analytic work and the opening up of more democratic spaces in which an examination of the practices of academic knowledge production can take place is I believe, as stated above, a commendable intention. In opening up such spaces, my concern is not to deny or supplant theory and method, indeed, these are regarded as particularly important considerations. See below (data construction) for the reference to Ladwig and Gore (1994) who have argued very forcefully for more expansive discussion and systemic analysis of the problem of power and methods.

The specific characteristics of case study that are pertinent to this research project are well defined by Michael Golby (1994), Helen Simons (1996) and Michael Bassey (1999). Golby wrote:

They...engage the researcher in enquiries they cared about. All are concrete and practical enquiries in real life contexts with important practical results. They are all contained in boundaries of space and time, having a beginning a middle and an end. They draw on a great variety of methods...They raise ethical problems, not all of which are resolved. They are written as end products, in ways that attract and engage the reader. Above all, they are purposeful enquiries, marked by care and diligence in their use of evidence.

(1994: 8)

Like Simons (1996) and Bassey (1999) more recently, the main argument Golby (1994) cites for case study is that, properly conceived, it is uniquely appropriate as a form of educational research for practitioners to conduct. It has the potential to relate theory and practice, advancing professional knowledge by academic means. It has the capacity for understanding complexity in particular contexts, and to transform:

research on education into...educational research by engaging the practitioner in practical enquiries resourced by appropriate theory and leading both to better personal understanding and improvement's in practice.

(p. 9)

In Simons' (1996) recent paper entitled 'The Paradox of Case Study' case study is re-examined as a form of research. The paper helps to refocus on the significance of case study and acts as a starting point for rethinking the nature of educational research involving case study. Her emphasis is on the use of case study in a variety of evaluation and policy research contexts. The importance of her paper is threefold. First, like Golby she acknowledges the original vision and utility of case study research, but recognises in the current political context case study is increasingly used not for its original purpose.

Yet along with its acceptance and widespread use in a number of educational fields - evaluation, research, policy analysis, action research - has come a weakening of the very characteristics of case study which prompted its emergence in the first place and a tendency in some forms of its use, to revert to the justifications which guide positivistic forms of research.

(p. 225)

As Simons argues the original reasons why there was a move to utilise case study in preference to more 'objectivist' forms of research and evaluation over twenty years ago seem to have been eroded as a result of pressure from government and sponsors who do not always value qualitative data, let alone that stemming from the single case. Researchers/evaluators strive to utilise the approach in policy-making domains increasingly hostile to its use. Such policy contexts are more receptive to modes of research and evaluation that derive scientific legitimacy from large samples and which seek to eliminate differences rather than highlight them in an attempt to provide evidence that is conclusive; more concerned to represent and make comparison of different sites in quantitative form, while paying some allegiance to complexity but avoiding the 'direct encounter' with the case itself.

In this context case study is treated as a technical method, not as an epistemological alternative and encounter, not as a social practice with the potential for change. This represents a compromise with the original intentions of case study for understanding complex educational phenomena and thereby an opportunity diminished for new ways of knowing.

Another reason for this lack of original vision and utility has been the ever present polarity over generalisation and the particularity of case study (see for example Stake, 1978, 1980; Adelman *et al.*, 1980; Walker, 1986; Mitchell, 1983; Atkinson and Delamont, 1985; Norris, 1990; Bassey, 1995, 1999; Hitchcock and Hughes, 1995). This leads to the second and ultimately more important aspect of Simons' paper, her welcoming of the paradox between particularity and generalisability and the need to explore rather than try to resolve the tensions embedded in them (p. 225, 237).

Paradox for me is the purpose of case study. Living with paradox is crucial to understanding. The tension between the study of the unique and the need to generalise is necessary to reveal both the *unique* and the *universal* and the *unity* of that understanding.
(Simons, 1996: 238)

Simons argues that this polarity stems from a particular view of research. Critics of case study claim that it lacks the first requirement of research, indeed of all academic work, namely that it cannot be generalised beyond itself. The major objection to case study is in the area of scientific generalisation. A particular case study tells us only of one instance, whereas science requires the accumulation of many instances if there is to be confident generalisation. Atkinson and Delamont (1985) characterise this sustained argument, 'if studies are not explicitly developed into more general frameworks, then they will be doomed to remain isolated one-off affairs, with no sense of cumulative knowledge or developing theoretical insight (p. 39).

One reply is, as Golby suggests, 'to deny that generalisation must always occur through the accumulation of instances, (though no doubt this is one legitimate form of generalisation in some contexts). To study a particular case is to observe it closely and to render it in some way intelligible' (1994: 13). Intelligibility is not principally a matter of observing/looking but inseparably from looking, a matter of re-examining and re-evaluating our cultural orthodoxies through which we look.

Case study is, then, the study of particularity. That is to say, case study is concerned with intelligibility, which in turn is a matter of connecting the case with others of its possible kind. Our ambitions in regard to particularity are important as part of the everyday human impulse to understand. Particular things (objects, events, institutions, people, relationships, emotions etc – I have already said the list is infinitely long) *are* seen as examples of general cases. It is only because they are so seen that it is possible to say anything about them at all. Language makes possible our understanding of things and their relationship together. The materiality of facts, events and people must be individual and particular, but they are linked and made intelligible through the categories, indicators and properties we use to describe them. We need, as Simons argues, to:

...embrace the paradoxes inherent in the people, events and sites we study. One may not have to 'stop the world' as Don Juan said to Carlos Castaneda, though his advice might well be heeded – as this was the first step to 'seeing' as opposed to merely 'looking'. But it is certainly only by detaching ourselves from the categories, indicators and properties we have been conditioned to construct that we will begin to notice that there can be new ways of seeing and new forms of understanding. The prize is the insight and the action that it brings... To live, with ambiguity, to challenge certainty, to creatively encounter, is to arrive, eventually at 'seeing' anew'.

(1996: 238)

Simons' notion of 'creative encounter', the third important aspect of her paper, presents a major challenge for educational researchers striving to understand and communicate 'truths' about complex educational situations and endeavours in the post-prefixed analytic moment. It is a challenge, I think, worth pursuing if we wish readers of our educational texts to engage with the instance or phenomena we research and evaluate in reaching professional and policy judgements.

collaboration

During the early stages of thinking about the design of the research project I was reading literature on collaborative/participative and change oriented research, including certain versions of action research, what Kenneth Zeichner has described as 'personal renewal and social reconstruction' (1993: 199). It was perhaps the work of Peter Reason (1994) and John Heron (1996) (while not agreeing fully with the nuances of either Reason's or Heron's 'theoretical background' to their 'participative paradigm', especially its tendency towards essentialism), along with the feminist revisioning of human development in terms of the importance of relationships, affiliation and reciprocity (see for example Gilligan, 1982; Belenky *et al*, 1986; Eisler, 1990) and my association with the Collaborative Action Research Network (as a member of CARN) that had the strongest influence on my ideas of collaborative research. I was becoming immersed within a culture that advocated:

...research as a participative process,...research *with* people rather than research *on* people...inquiry as a means by which people engage together to explore some significant aspect of their lives, to understand it better and to transform their action so as to meet their purposes more fully.

(Reason, 1994: 1)

This is a form of research that uses awareness of the *self* and *others*, both psychologically (emotional and interpersonal), philosophically, methodologically and politically (I do not see these categories as separate) to shape the inquiry. A form of research that places the participants/collaborators at the centre of the research process, where reflexivity becomes a continuing mode of self-analysis and political awareness.

Collaboration is about working and learning together. It is an emergent process, in that it can only be learned through the doing. It breaks down the separation between the roles of researcher and subject. In more traditional research these roles are mutually exclusive:

The researcher only contributes the thinking that goes into the project – conceiving it, designing it, managing it, and drawing knowledge from it – and the subjects only contribute the action to be studied.

(Heron, 1996: 19)

In collaborative research this division is replaced by a participative relationship among all those involved. This participation can be of different kinds and degrees. In its most complete form, the inquirers engage fully in both roles, oscillating between moments of reflection as co-researchers and of action as co-subjects.

There are many examples of collaborative research, whether it is students and teachers working and learning together, or colleagues within and across institutional boundaries and professions. Much has been written about its possibilities and complexities (see for example the collection of chapters in Reason, 1994 and associated references). Yet, this perspective on professional development, characterised by Ann Borthwick (1982: 384) as an active process of making sense of experience, articulating and building on one's stock of knowledge in such a way that it may inform future action, is a formidable challenge in practice. Collaboration is not made inevitable as the result of such theoretical models or good will. The Australian Research Council Review Panel stated in a report on educational research in Australia:

...serious collaboration between researchers and practitioners requires...both parties to reconceptualise their roles and, to some extent, to merge the separate worlds in which they operate.

(1992: 60)

I used Heron's specification of *full form* and *partial forms* of participation as a descriptive aid to identify the form of participation attempted in this research project, and my reasons for wanting to initiate a *full form* participative research project.

Peter Reason (1988: 20) suggests that collaborative inquiry is usually started by one or two people who have an idea and concern for a research project and wish to involve others within it. These *initiators* are the ones who in the first instance identify a research issue or problem they wish to consider. They are committed to both the *issue* and to a collaborative *method* of inquiry. Heron, extends the idea of participation in terms of issue [content] and method [process], by distinguishing two complementary kinds of participation: that is *epistemic* and *political* participation (p.20). Using Heron's words extensively (p.20-22) epistemic participation is to do with the relation between the knower and the known in terms of involvement in the experience and action being researched. The researchers as knowers participate and get involved as subjects in the experiences that are to be known and that are the focus of the inquiry. Furthermore, the subjects' experiences involve forms of knowing that participate in that to which these forms relate. Political participation is to do with the relation between people in the inquiry and the decisions that affect them. The subjects, those who provide information about themselves and their situated actions, also participate as researchers in the thinking and decision-making that generates, manages and draws knowledge from the whole research process. Though epistemic and political participation can be seen as distinct for purposes of analysis, in reality they are also closely intertwined. The political participation by

subjects in research decision-making empowers their epistemic integration; and epistemic participation by researchers in the experiences that are the focus of the inquiry involves political engagement with the subjects.

There can be different degrees of these two kinds of participation (see table 5.1 below). A particular form or type of participation is defined by taking any one of the three political rows, A, B or C, and combining it with any one of the three epistemic rows, D, E or F.

Table 5.1 Kinds and degrees of participation

		Researcher	Subject
Political participation	A	Full	Full
involvement in research thinking	B	Full	Partial
and decision-making	C	Full	Nil
Epistemic participation	D	Full	Full
involvement in experience and	E	Partial	Full
action being researched	F	Nil	Full

Combining A and D from the table provides the full form of participation in which all those involved are both co-researchers and co-subjects in full measure (see Table 5.2 below). In this form, the separation, both epistemic and political, between researcher and subject breaks down, everyone alternating between the roles of co-researcher and co-subject, between making sense of the data and generating it through action. What does not, however, necessarily break down is the difference, at the outset of the inquiry, in methodological know-how and facilitative guidance, between the *initiating* researcher[s] and the other co-researchers. Working to break down the difference in the interests of both participation and good-quality inquiry is one of the major challenges of participative research.

There is also a partial form of participative or collaborative research. In this everyone is involved as co-researchers in the research reflection, but the initiating researcher[s] are only partially involved as co-subject[s], because, as 'external actors' they are not members of the profession, participant culture or organisation in which the research is focused. This is shown in Table 5.2 below, which combines rows A and E from Table 5.1. The partial involvement as co-subject[s] can have at least two different forms. The initiator[s] may become analogous co-subjects, that is, they research something similar in their own professional work or organisational setting. Or they may make visits to the workplace where the action is to take place, to get involved in the action, as participant observers and in forms of dialogue/conversation. Or they could do both of these things. And again, at least initially, the initiating researcher has greater methodological know-how and facilitative guidance. There are a number of qualitative research approaches that are relatives of this partial form of participative inquiry.

Table 5.2 Full form and partial form participation

	Researcher	Subject
Full form participation		
Participation in decisions	Full	Full
Participation in experience and action	Full	Full
Partial form participation		
Participation in decisions	Full	Full
Participation in experience and action	Partial	Full

If the initiating researcher[s] are not a subject of their own research, they will generate knowledge that is not properly grounded either in their own or in their subjects' personal experience, as in the more traditional positivistic research; or they try to ground them exclusively in their subjects' embodied experience, as in more mainstream qualitative research.

The combination of rows C and F in Table 5.1 yields this traditional positivistic research – doing research *on* people, in which the researcher designs the project unilaterally, does all the research thinking and decision-making and the subject none of it; and in which the subject undertakes all the experience/action relevant to the inquiry, and the researcher is involved in none of it. The conclusions about the subjects' experience/actions are drawn exclusively by the researcher in terms of his or her own categories and theoretical constructs. These categories and constructs precede the research, define it and are often held constant throughout it. This way of doing research on people is problematic on two main grounds. Politically, it ignores the human right of people to participate in decisions that concern and affect them. To generate knowledge about persons without their full participation in deciding how to generate it, is to misrepresent their personhood and to abuse by neglect their capacity for autonomous intentionality. If research subjects do not exercise their right to self-determination with respect to research decision-making, then they are not fully present in the experience or action as fully functioning, self-directed persons, but as conformist, other-directed persons. They are asked to acquiesce in being oppressed and disempowered by imposed value and norms. This is obviously unethical. The research does not tell us anything at all about human personhood. This is the case with traditional positivistic research. And while the more mainstream qualitative research dose seek to study people's own experience and actions in their own settings, the extent of their acquiescence and of their actions in the study is compromised by the researchers' unilateral design of it.

Epistemologically traditional positivistic research on people produces propositional knowledge in terms of theoretical constructs that are experientially ungrounded. They are not grounded in the experience of the researcher, who does not get involved in the experience which is the focus of the research. And they are not grounded in the experience of the subjects, since while this is the focus of the research, the subjects have not been consulted about, or involved in any way in the selection of, the constructs which are used to make sense of their experience. There is a yawning gap of untested relevance between the researchers' constructs and the subjects' experience which the constructs are supposed to 'rationalise' (describe, explicate and

account for). The more the research focuses on matters of significant human concern, the more grave these political and epistemic limitations become.

The combination of B and E in Table 5.1 yields a research approach in which the researcher is fully but not exclusively involved in the research thinking and decision making; [s]he invites the subjects to be partially involved in it. And while the subjects are fully engaged in the experience/action that is being researched, the researcher is also partially involved with it. This is traditional mainstream qualitative research and includes ethnography, and participant observation, grounded theory methodology, phenomenological studies, ethnomethodology, symbolic interactionism, case studies and related strategies (Denzin and Lincoln, 1994). What these approaches have in common is the study of people *in situ* in their own socio-cultural setting, and the attempt to understand them in terms of their own categories and constructs, which tend to progressively emerge and become clarified as the research process unfolds. Above all, the researchers' account of the subjects' perspectives is validated and checked with the subjects themselves. This is often the main part of the research thinking in which the subjects are involved and it is regarded as the most important way of establishing the credibility of the research. But the basic interpretive frameworks and operational methods used are not designed collaboratively with the subjects.

Further, the researcher does not engage fully in the action and behaviour that is being studied, but does engage in 'fieldwork', that is, visits regularly the occupational/institutional setting where the action occurs and is a participant observer and data 'gatherer' of the subjects' perspectives and behaviour in that setting. A participant observer can get more or less involved in the activities of the social situation which [s]he is observing, but is still only a partial participant in it.

Mainline qualitative research is problematic on the same two fronts as more traditional positivist research, only less so, whether researchers' understand the process as being concerned with understanding or with the empowerment of subjects. Politically it has not grasped the right of informants to participate in formulating the research design, so that they can manifest fully their values in the way knowledge about them is generated. Many of its research projects are still unilaterally shaped by the researchers, however emergent that shape may be. This approach, even at its most empathic and benign, still subtly oppresses the informants, who are enmeshed in a discreet web of imported values implicit in every design thread the researcher spins (Heron, 1996: 28).

Epistemologically mainline qualitative research does strive to produce propositional knowledge in terms of theoretical constructs that are grounded in relevant experience. These constructs may marginally be grounded in the researchers' own experience of the subjects' culture, to the extent that the researchers actually participate fully in that culture. So the researchers mainly seek – by observation of visual evidence, informal dialogue, more structured interviews, written records, and member checks – to ground their constructs in their subjects' experience. But, once again, the adequacy and relevance of this grounding is

suspect if the subjects are not involved in decisions about how, and for what purpose, data is generated about their experience, and about what interpretive schema will be applied. Such qualitative research *about* people is a halfway house between exclusive controlling research *on* people and fully participatory research *with* people.

The more research involves subjects in the full range of issues involved in research decision-making, not only about content issues but also about operational methods; and the more fully researchers participate in the cultures they are studying, the more it shifts in the direction of participative inquiry. This was the ideal and the way I conceptualised our roles. It is of course an ideal to which we can only approximate however hard we strive (Reason, 1988: 19).

I had come to accept that there is something odd about researchers wanting to ground their own interpretive schemas in other people's social experience, while ignoring ever present opportunities for more fully and reliably grounding theory either (1) in *their* own indigenous social conditions and context or (2) in *others'* conditions and contexts where the others have a full say, with the researchers, in framing relevant and suitable schemas and operational procedures [*practices*], in an understanding of the extraordinary diversity of human social life (Heron, p.30).

methods of data construction

As stated above, the use of case study in educational research is characterised by its focus rather than by its methods. It does not have its own techniques of investigation. All methods are in principle admissible in a case study. None are ruled out. Sandra Harding (1986) states that all methods of data construction within the social sciences fall into one of three categories: communicating (asking questions and listening intently to the answers), observing events and analysing documents. There are many varieties of these activities and there are various ways of classifying them. For example, there are qualitative and quantitative, participant and non-participant, 'naturalistic' and non-'naturalistic' methods. There are many debates about methods, too often characterised by simplistic dichotomies around the use of these inexact classificatory or boundary terms, which developed much of their meaning in opposition to their counterpart, by reference to what it *not*. This way of understanding the issues has the advantage of a simple structure which can be grasped fairly easily though this simplicity is ultimately deceptive and unhelpful (Griffiths, 1998: 14) because it obscures more important contours of the debates about the validity, ethics and usefulness of research (see chapter 3). There is further confusion in that such terms can refer to a tradition of research or to kinds of data.

The methods have to be selected, even invented, in the light of emerging definitions of practical problems. Since such definitions are not bias free, the application of methods/techniques cannot be prescribed on the basis of objectivist dogma (Elliott, 1993: 189). Equally, while there may be only limited numbers of particular methods or techniques available, there should be room for considerable exploration of how those

methods are to be technically *enacted*. James Ladwig and Jennifer Gore (1994) argue convincingly of the need for more expansive discussion and systematic analysis of the procedures of research, of the utility of methods. In their essay Ladwig and Gore place research within an historical context where it is legitimate, indeed profitable, to question the orthodoxy supporting extant societal relations of power. They raise a number of important general concerns about a broad activist agenda within educational research. They are concerned that if this agenda is to advance even further then explicit discussions of 'power' and 'method' are necessary:

Questions of how to conduct research and questions about the impact of particular methods on researchers, participants, and their fields remain salient concerns for the enactment of the very research advocated.

(Ladwig and Gore, 1994: 235)

Chapter 5 attempts to address with more specificity the issue of the power of methods for activist educational research in relation to both collaboration and the environment.

During the course of the research project I made regular twice weekly visits to the school, during term-time, between September 1994 and July 1996. My visits usually included a morning or afternoon session of shared teaching (team teaching) with Suzanne. This enabled focused and evaluative discussion to take place (taped and transcribed), as well as a fusion of spontaneous and informal conversations within the context of this teaching and during the school day. The rest of each day involved a number of different methods of data generation including participant observation of Suzanne's teaching, regular informal but focused discussion at the end of the school day (taped and transcribed). Additionally, there was always an element of 'hanging around', of being there, a researcher in residence. Finally, informal focused discussion occasionally took place at the university or at Suzanne's home during school holidays, to replace planned sessions that had not taken place either during or at the end of the day.

More specifically the methods of data construction used in various settings in an attempt to focus on the experiences and understandings of the 'everyday world' (Smith, 1987: 99) of educational practice, and in the formulation of the two stories of 'good pedagogy' in environmental education and 'doing' educational research were:

1. Shared teaching of both individual lessons and 'topics' that ran over several weeks. Overall there were twenty-seven shared teaching lessons. Each enabled:
 - (i) preliminary focused conversation/discussion about both the planning and purpose of the taught session/topic, and the identification of possible issues that might emerge from the teaching and learning process, usually done at the end of the preceding day; and
 - (ii) evaluative conversation/discussion of issues arising from the lesson/topic. The evaluation sessions were always carried out at the end of the school day.

Both (i) and (ii) were taped and transcribed and they commonly lasted between 30 – 60 minutes. Suzanne was responsible for the planning of all the teaching sessions and topics considered in this text. This form of data construction was an attempt to gain what Pollard and Tann (1993) describe as a perspective on the 'experienced curriculum' and insight into Suzanne's practice.

2. The shared teaching was also a way of creating ongoing, open-ended, free-flowing conversation as the lesson unfolded and during the school day. The focus was more often than not specific issues around the teaching and learning process. It was not possible to tape these conversations.
3. Other informal focused conversation/discussion. In addition to the preliminary and evaluative discussion of shared teaching sessions mentioned above, thirty three other meetings also took place, generally at the end of the school day, but on occasion at the university or at Suzanne's home. The meetings at the university or Suzanne's home were the result of planned meetings which did not take place, usually as a result of the organisational routines of the school or because of personal commitments. These meetings generally lasted about an hour, but on occasion considerably longer. These meetings had three main foci:
 - (i) more detailed discussion of issues/topics that had evolved from our shared teaching and on-going collaboration
 - (ii) detailed discussion of other issues/topics with respect to environmental education not discussed elsewhere such as the idea of 'socially critical' environmental education, the social construction of knowledge and an environmental ethic
 - (iii) detailed discussion of 'working papers' Suzanne had written for me (see below).

The focus of discussion within such meetings was always known in advance, and time was given to prepare for the meetings. Both Suzanne and myself could initiate and manage such meetings in whatever way we wished though in reality Suzanne did not initiate any meetings. As time went on Suzanne did contribute specific questions to the meetings and took on greater responsibility for the management/development of discussion within these meetings. Each of these meetings was taped and transcripts made.

4. Suzanne 'writing for me' on specific topics and issues. Suzanne wrote fifteen 'working papers' during the research project on various topics either about certain aspects of environmental education or her own professional life, such as 'my autobiography', 'writing for me, writing for myself'; 'environmental education in general', 'education for the environment', 'education for sustainability', environment

related educational practice with key stage 2 children', 'is there a socio-ecological 'crisis'. I have used some of this writing in an attempt to present a kind of biography of Suzanne in this text.

5. Participant observation and note making. There were two aspects to this. I observed twelve lessons taught by other teachers and attended and observed six staff meetings as a way of trying to contextualise the teaching culture and practices more generally. It encouraged Suzanne and myself to discuss the more subtle aspects of the organisational culture of the school and classroom. This occurred more intensively in the early stages of the research project. I also formally observed twenty of Suzanne's lessons over the two years. The main foci of the lesson observations were:

- (i) Suzanne's intentions as illustrated in written and spoken aims and
- (ii) what actually happened in the lesson in terms of specific learning activities used and the active involvement of the children.

The observation of Suzanne's lessons was seen as both an aid to conversation/discussion, and as a way of trying to 'get in touch' with Suzanne's environment-related educational practice. This participant observation enabled me to investigate what Pollard and Tann (1993) call the 'observed curriculum'. Observing a variety of events, interactions and practices let me perceive a subtle display of strongly held often tacitly expressed values and norms.

6. 'Hanging around', being there, a researcher in residence. This was done in order to help me get to know the school better, to understand the 'everyday world' of the school, which is rarely recognised by, or accessible to, external agents or trainers (Sparkes, 1991: 14), to enable teachers and pupils to become more familiar with my presence and to foster more 'spontaneous' participation in a variety of activities. Again, this occurred more intensively in the early stages of the research project.
7. Shared involvement in continuing professional development events. Specifically this involved attendance at two weekend in-service seminars organised by WWF (UK), and contribution through paired presentations and general discussion in workshop sessions. The seminars took place in November 1994 and April 1995. The purpose of the WWF (UK) seminars was both to promote Reaching Out: Education for Sustainability, a teacher professional development course, and to consider environmental education in primary and secondary schools, with a specific focus on the current state of teaching and learning and possibilities for improvement. Again, this was an attempt to create for Suzanne and myself an enabling situation which would lead to further conversation/discussion, especially in terms of education for sustainability.

8. Keeping a research journal. This was to enable us to keep regular notes of events, actions and ideas, also the ways in which we experienced them – how we felt about and interpreted them at the time. The journals would also contain retrospective and reflective commentaries on these feelings and interpretations. This kind of reflective/reflexive writing, as Holly (1989) states, helps to recall experience and explore its significance for enhancing practice. The journals also provided a basis for the generation of new questions for discussion. The journals were seen as confidential to their authors, what was disclosed from them was under their control.
9. The collection and use of policy documents and curriculum plans.

The data generated by these methods actively constructs the story of 'good pedagogy' in environmental education made known in chapters 6 and 7. The story is based on two individuals [Suzanne and myself] in collaboration, in conversation over two years. The concern with non-representational theories of environment-related educational practice in terms of 'good pedagogy' articulated in chapter 8, emerges to an extent from within the collaboration, but to a greater extent, alongside and beyond collaboration. It is much more part of my own analytic project, which is also developed in chapter 3. It was also intended that data generated by these methods would construct a story of 'doing' committed educational research, based on the collaborative practices of Suzanne and myself, but unfortunately as stated in chapter 2 and explained in chapter 5, this aspect of the collaboration remained unrealised. The story of 'doing' committed research in chapter 5, is therefore, my story only, and is a story of what might have been.

The significance of the selection of these methods was in terms of their potential flexibility and the emphasis on conversation/discussion, where the idea of 'space' in the sense of room to manoeuvre with ideas (Spivak, 1988) was the central organising feature, and in the hope that the teachers would feel that they had an 'entitlement to speak' (Fine, 1992: 25). Because of its epistemological commitment to a more democratised research agenda, the research was construed in a way that it would provide space within which teachers as educational practitioners can reveal what is real for them (Smyth, 1999: 75). This means that research ideas and questions can only really emerge out of 'purposeful conversations' (Burgess, 1988) rather than interviews (whether structured or unstructured). The operation of the power dimension in an interview, where the researcher has the question and he/she is trying to extract data from the interviewee, has all the wrong hallmarks of a more participatory and committed approach.

The basic reporting unit is, not so much the datum, the 'piece of information', but the scene (Wolfe, 1973: 50), the 'everyday world' (Smith, 1987: 99) of our on-going work and conversations. As Smith suggests research situated in the 'everyday world' provides a problematic where the subject of the research is always located just as she or he is actually located in a particular material setting. Research from such a feminist standpoint attempts to:

Preserve the presence of subjects as knowers and actors. It does not transform subjects into objects of study or make use of conceptual devices for eliminating the active presence of the subjects. Its methods of thinking and its analytical procedures must preserve the presence of the active and experiencing subject.

(Smith, 1987: 105)

The methods facilitated prolonged engagement between Suzanne and myself in the 'everyday world' and allowed particular ideas and issues to recur and be discussed through purposeful conversation numerous times. In this way co-researchers stay together long enough for scenes to unfold.

The data from the research methods described above are presented in the text in terms of what I have called 'scenes' (Wolfe, 1973) of the 'everyday world' (Smith, 1987). These scenes bring together and present single and multiple events over a period of time. They are not 'things' which exist independently of an observer and are awaiting discovery, like all data, they are created in the interaction of researcher with a material context over time. The idea of 'critical incidents' as articulated by David Tripp (1993) helps describe such scenes:

Incidents happen, but critical incidents are produced by the way we look at a situation: a critical incident is a value judgement we make, and the basis of that judgement is the significance we attach to the meaning of the incident.

(p. 8)

The critical incident is created by seeing the incident as an example of a category in a wider, usually social context.

(p. 23)

...it is the unremarkable and everyday events that make up our routine professional lives that are often the best indicators of the patterns and values that underpin our practice. It is through rendering critical the incidents of normal everyday events that much personal-professional development can occur.

(p. 40)

Using photography as a metaphor for writing (see Rosaldo, 1987) the case narrative by 'scenic' design becomes not simply a record of experiences, but a product of the case study. And it is through the practice of designing/crafting the case narrative that the analytic worker becomes not simply an objective narrator of experience, but a narrative filter through which experience is shaped and given meaning.

getting started

I initiated the inquiry. I identified the two broad areas I wanted to explore with teachers, namely environmental education and collaborative inquiry. I wanted to establish a collaborative inquiry group in which the intent was that all members work together fully as co-researchers. I was committed and the challenge was, therefore, to set up such a group, given that the *initial* idea(l)s for the overall themes, process and purpose of the research project were owned by me. Most of my initial questions about the proposed research project were directed to this tension as recorded in my research journal.

Who is this research for? Is there any genuine possibility of a collaborative endeavour? And doesn't this create problems in terms of 'standard' PhD expectations? Is there an inquiry task around which a group of people can genuinely come together to explore which resolves issues of initiation, ownership and power?

(Personal journal entry, 1 September 1994)

In the first draft of my research proposal I have written 'my' research project. Isn't this a contradiction of one of the main aims of the research and the use of the term collaborative. But, I cannot lose sight of the fact that the research project is also an academic award bearing activity [which may be problematic in other ways too?] I feel as though the research project has been established within an existing system of rules, relationships and expectations of outcomes not entirely owned by my potential co-researchers, or me.

(Personal journal entry, 4 August 1994)

There was no identifiable ready-formed group with which to work, so during the summer term of 1994 I attempted to establish a group of teachers who would join me in an inquiry in some broad area of environmental education. There were two initial concerns in relation to the establishment of this group. On the one hand I wanted a project that was 'manageable', in terms of being able to make frequent and regular personal contact with teachers. This meant I was thinking of a relatively small group, of between 5-8 teachers.

Second, selecting schools and teachers to be involved was problematic in that I was new to the area of the East Midlands and had few contacts. I decided to write to all primary and secondary schools in Nottinghamshire with a Trailblazer co-ordinator; an advertisement was also placed in the local newspaper inviting schools to take part in a research project. I learnt of the trailblazer network through LEA geography advisory teachers. Several schools responded and representatives from each attended a number of discussion meetings at the university during June-July 1994 to consider the possibility of developing a collaborative research project concerned with environmental education. Some brought curriculum and policy documents to support their claims of good environmental education practice. In the meantime the letter of invitation was sent to all other schools (not involved with Trailblazer), but this did not generate any new interest.

The notion of collaborative inquiry as a way of doing educational research was not well known by any of the teachers who attended the initial meetings. Generally, they tended to see research as some sort of esoteric enterprise necessarily done by outside experts, which had very little bearing on the educational happenings in their schools and classrooms. I tried to walk a tightrope between stressing how easy the inquiry task is – because much of what you do is based on very common human activities and we all have extensive experience of them – and how difficult it is for exactly the same reason.

As a result of the discussions a single primary and secondary school committed themselves to collaboration. At the beginning of the new term in September 1994 the secondary school pulled out, concerned that the commitment would be too time consuming. I was left with one school, or rather three teachers from one

school, and in consequence the primary teachers, Suzanne, Francis and Hazel, were more or less self-selected. Teachers who were interested in participating had the opportunity to register for the in-service masters programme at Nottingham Trent. This fairly standardised practice of offering teachers an opportunity for professional development within the context of award bearing courses and research degrees was not taken up by the teachers.

Holly Hill County Primary School

The school and teachers involved in the research project are given their actual first names in the thesis as permission was obtained from those concerned to name them here, additionally these details have previously been published elsewhere (Firth, 1995; 1996).

Holly Hill County Primary School is located in a semi-rural position to the north west of Nottingham. The school is two-form entry and is housed in fairly modern [1960s] but traditional buildings in a relatively central location within the village of Selston. It is within a mile or so of the village centre in a predominantly post-1945 housing area but with more modern infill. The buildings are one storey, with two long corridors leading off from a large central hall/dining room and resource/library/entrance area. Classrooms were located along the two corridors. All of the classrooms had excellent views of the fairly extensive and well laid-out school grounds. Through the enthusiasm of Suzanne (year 6), Francis (year 5), Hazel (year 4) and other colleagues Holly Hill has a fairly longstanding tradition of commitment to environmental education. This is demonstrated by the work that has been done on the school grounds, the annual environmental week and the integration of environmental education into both core and foundation subjects of the curriculum. From the beginning of our collaboration I was always made to feel very welcome within the school and within each of the teacher's classrooms. Suzanne in particular was used to regular visits from fellow professionals from various educational institutions and organisations interested in environmental education, though the school had little if any experience of collaboration or more recent partnership arrangements within initial teacher training.

the loss of Francis and Hazel

For the first few weeks both Hazel and Francis expressed interest in the research and a willingness to be involved. We had several meetings to try to establish a conceptual framework for the research project. Initially this focused on exploring the question 'what interests me in the research project'. These meetings took place in the staffroom after school, where we all sat round chatting generally about the events of the day and wider issues, before moving on to the possibility of research collaboration. This was done through 'talk and listen' and informal discussion in which experience was shared, ideas expressed, concerns voiced and alternatives explored. This helped to bring out the different expectations we were bringing to the research, establish whether there was a sensible basis for working together and enabled us to consider a possible design for the project and how we might proceed as a group. All three teachers were concerned to

know 'what they were letting themselves in for'. It helped to get our initial orientations and concerns out in the open.

The framework was to be regularly reviewed in the light of our experiences. Robson (1993:151) suggests as a very rough rule of thumb that this should take place when a third of the time available for generating data has passed. In reality this was something that we were implicitly doing all the time. We deliberately attempted to remain open to other possibilities, issues or possible features of our developing relationship not captured in our initial framework.

During these first few weeks I sensed that Francis and Hazel were not fully committed to the idea of working together, having expressed some concern about the amount of time involved. It became apparent that Francis and Hazel were not eager to develop a research stance towards their own practice. I did not assume from this that the likelihood of their doing so was beyond the realm of possibility. I began to look for 'spaces' in the organisation of the school and their routine practices in which 'ways of working together' might be possible. Unfortunately, no such opportunities arose within the long established and accepted routines at the beginning of a new school year. While I hoped that they would become more fully involved with time, I also knew that this would not happen. I did not want them to carry on if they were finding the situation difficult. There was never any discussion between us, focussed or otherwise, about this 'drifting away'. I felt awkward about this situation; at the time it would have been inappropriate to ask about this, as they had not voluntarily offered any reason or explanation. With time it felt even more inappropriate to attempt to obtain their understanding of the situation, though they often asked both Suzanne and myself how things were going. For these reasons the research project became focused on the developing professional relationship between Suzanne and myself.

I can only offer my own understanding of this situation. Being members of the group would involve for Francis and Hazel a significant time commitment and they felt that they could not devote such amounts of time with all their other professional commitments. I also believe that my understanding of research, curriculum development and teacher professional development was somewhat incongruent with their own. In our initial discussions about research, curriculum development and professional development their ideas were expressed in terms of traditional understandings of these areas. In particular, they were very ready to confer on me expert status, and to allow the action to be initiated by me with a minimum of opportunity or responsibility for involvement on their part. Given such expectations and my concern to take a *initiator responsive* rather than an *initiator directive* role, it was difficult to see how I would maintain the integrity of my desired position, and how Francis and Hazel might adopt a research stance towards their own practice and continue to be involved. The risk of becoming co-opted by the prevailing traditional perspective of research and professional development seemed very real to me. Francis and Hazel were not comfortable with the notion of collaborative endeavour in which teacher development might take place. They said themselves in the early stages of discussion that they had no experience of collaboration beyond discussion

of routine everyday educational concerns and issues, beyond an ongoing concern for everyday practice and the regular key stage curriculum planning meetings, nothing of vision in which teacher development might take root.

Suzanne's participation in the project

Suzanne was the instigator of the schools' involvement in the research project. It was Suzanne who responded to the initial request for participants in the research project. In her letter of response she emphasised her own personal commitment to the environment and the school's long standing involvement in the promotion of environmental education. Her letter reflected an enthusiastic and positive attitude towards the possibility of collaboration on a research project. She also suggested that other members of staff might be interested in being involved in such a project.

Suzanne

Dear Roger

I received your letter regarding the possibility of a research project into the teaching of environmental education. As trailblazer co-ordinator and on behalf of the staff and children of the school I would like to express our interest in such research.

The school has been involved in a very positive way and committed to environmental education for many years. We have carried out many environmental projects within the school grounds and local area. My own commitment is long standing. As a school we would like to explore the possibility of doing such research with you. We look forward to hearing from you shortly.
Suzanne

The meetings during the summer of 1994 finalised our professional involvement and co-operation. Comments Suzanne made during these early negotiations highlight her commitment to environmental education and her interest in the possibility of collaboration in a research project.

Suzanne

My commitment to all things environmental is something I have had ever since I can remember. I don't think it stems from my parents who never really seemed to have any leanings in this direction, though some of my family were teachers and farmers with wide ranging rather than specialist interests in the environment.

During all the years of my teaching I have stressed the importance of the environment and environmental issues and helped to make children aware of their environment. I always found it easier to develop my teaching about the environment through natural topics. There are many environmental initiatives I have been interested in over the years, mainly because I am interested in everything and want to do so much. I can't think of a time when I haven't been growing and planting, saving trees and animals, taking an interest in countries and events and being intensely interested in anywhere I visit. I want all children to have the same pleasures.

I am interested in all aspects of environmental education, and its development. Though it is ironic in some respects that environmental education is often represented as 'something new' or relatively new. And we often hear statements from policy makers that suggest environmental education is 'happening' or going to happen. Is the rhetoric giving the right messages to younger teachers? In reality many of these ideas have been around for years. We have our school policies, 'done' our school green audit - but what is really happening. We are stuck in the rhetoric of the potential, there seems to be very little actuality. As an experienced environmental educator I seem to have seen and heard it all before. A question I often ask myself is: Where do we go from here? At the moment I am a member of the SCAA working group for science involved in the redraft of the Science National Curriculum. I have written a teaching science 'ideas book' for Scholastic publications and several articles on various topics for primary education journals.

initial context at Holly Hill County Primary

The teacher's all identify their approach as being 'child centred', but there was considerable variation in the way that each teacher described the meaning of the term. I sensed there was a feeling among the staff that their teaching was becoming more 'formalised' to ensure that the National Curriculum programmes of study are being covered, in ways that can be recorded and assessed. Peter Silcock (1995: 155) suggests that teachers are 'bolting on' these more formalised activities to existing practices, and that we are seeing the development of 'hybrid curricula' in primary schools. These are short-term pragmatic responses to the changing nature of the National Curriculum. As Silcock argues these short-term expedients, perhaps, wait to be discarded following further rationalisation.

Conversations with the teachers did suggest that there is a conflict between two principles – shortage of time to fulfil National curriculum requirements and demands of 'good practice', described ideologically in

terms of childcentredness. It also appears that the National Curriculum framework as a formal structure of graded attainments and progressing through levels has benefits that are recognised by the teachers.

Francis

Much has changed in the last five years. We have all had to rethink, sometimes together. We are more focused now. We now have to plan and resource the teaching topics for KS1 and 2 each year. This gives me a sense of some control over the curriculum, though the National Curriculum documents still dominate, that is give the overall structure to our plans.

Hazel

But we feel more pressurised as well. We have to teach certain things we would otherwise not teach, and in a way that emphasises content and coverage. There is so much to cover, but insufficient time to do it all.

Suzanne

And there is no time to step back from it all. The pace is relentless for most of the time. I often wonder how the children cope with it all. But, there is no going back. But I am not sure where we are going either - if the more standardised National Curriculum and formal methods of teaching will continue to develop, or whether teachers will increasingly shape it to suit their own ideas and beliefs. In a sense we are already doing this.

Committed research: on what might have been

I for one find it refreshing to hear a distinguished Parisian intellectual like Lyotard using words like 'maybe', 'perhaps', 'what if', instead of seeking to perfect a 'line' defensible on all fronts or to lapse back into the assured, disembodied accents of the professional academic or (social) scientist.
(Hebdige, 1989: 226)

Too often, the idea that educational research must be committed, that is politically engaged is reduced to a slogan. It is a purely rhetorical point in which researchers assert their connections with various silenced, marginalised or oppressed groups or other social issue (in this case the environment) but then go about their business in ordinary ways. In other words, declaring oneself a committed researcher in the context of an overwhelmingly conservative academy does not require of academics that they do much more than signify their difference in this way. The problems faced here are, however, difficult.

(Adapted from Apple (1994), in Ladwig and Gore, 1994)

Although we usually think about writing as a mode of 'telling' about the social world, writing is not just a mopping-up activity at the end of a research project. Writing is about a way of 'knowing' – a method of discovery and analysis. By writing in different ways, we discover new aspects of our topic and our relationship to it. Form and content are inseparable.

(Richardson, 1994: 516)

It is all very well advocating reflexivity, but it is not a straightforward business.

(Griffiths, 1998: 141)

We never fully know what implementation is or should look like until people in particular situations attempt to spell it out through use.

(Fullan, 1982)

In chapter 3 I spoke at some length of the wider issues of doing educational research in the post-prefixed analytic moment and the methodological agenda that has come with it. What I wish to turn to now is a critical consideration of particular issues as a committed researcher of enacting and encoding educational research, and of my own role as facilitator/collaborator. Although the evolution of these newer frames of reference/ideologies has produced a lively and growing body of epistemological and theoretical work within the field of research, there are [as yet] relatively few educational researchers who address the above mentioned concerns within a context of their own work. As Anderson (1989) noted some time ago, there is a significant need to share the way in which post-prefixed educational researchers address issues and dilemmas brought into focus as a result of the changes that have taken place within the field of educational research. John Smyth and Geoffrey Shacklock (1998) argue that 'the experience of one researcher can be of great benefit to another, yet accounts of the process of [trying to] carry out critical research are still not common. Such accounts would tell the story about the intersection of the critical research perspective and the particular circumstances of the research context, as they occur in the actual experience of [trying to] do critically oriented research' (p.1). Here, I discuss theory and method by way of my work with Suzanne, though as pointed out in chapter 2, this should have been a collaborative enterprise, but unfortunately this aspect remained unrealised. It is worth emphasising that I place this consideration of doing research before any consideration of environmental education, not because, in any way, it should be logically prior, but

rather to foreground the actual collaborative practices within which 'data' about environment related educational practice was actually constructed.

The depiction of this particular research instance, as a first time committed educational researcher, is intended to provide two things of value to educational researchers and practitioners, though in one sense, and in keeping with the culture of reflexivity, every reader will derive her or his own meanings from the analysis. First, it gives an illustration of current practice. Second, it considers some more general methodological and theoretical issues linked with this openly committed position to research. Specifically, it considers the approach in relation to its sensitivity to the collaborative and reflexive features of research identified in chapters 3 and 4. These aspects of the research methodology/method are explored in terms of their potential benefits and drawbacks, and reflect the concerns of other approaches to research which emphasise reflexivity and commitment (e.g. Stanley and Wise, 1983; Gitlin, 1994; Denzin, 1997; Jipson and Paley, 1997; Griffiths, 1998; Shacklock and Smyth, 1998). The approach is evaluated with a particular focus on the question of whether those analytic workers who are committed to the establishment and maintenance of a more healthy environment for all can contribute to the reflexive reconceptualisations of ways of engaging with environmental issues.

issues of commitment/ideology¹

A post-prefixed perspective generates a distinctly different framework with which one conducts research. My goal has been to reorient my work away from modernist assumptions of reality and the purpose of research and move it towards a committed reflexive practice. The justification for such a committed approach draws on a spirit of research which has, as its goal, social change. From this perspective the purpose of research is not just to interpret the world, but to change it as well. My particular understanding of committed research, as emphasised in chapter 1, is that, while it does not feature claims that research can bring about change, the reflexive orientation is concerned with broad practices of social transformation through committed and contextual review and action.

One's ideology or frame of reference is intimately embedded in every aspect of the research endeavour. It influences the type of phenomena we choose to study, what we notice during the construction of data, and the way in which we analyse the findings. As a result, a distinctive characteristic of committed research is its 'openly ideological nature (Lather, 1986) and the necessity of reflexivity, of awareness of how researcher values permeate inquiry' (Lather, 1991: 2). That is, researchers make a commitment to become aware of, reflect upon, and articulate their ideological convictions within the context of their work. As Alcoff (1991) states,

The desire to find an absolute means [scientific methodism] to avoid making errors comes perhaps...from a desire to...establish a privileged discursive position wherein one cannot be undermined or challenged...From such a position one's own location and positionality would not require constant interrogation and critical reflection; one would not have to constantly engage in this emotionally troublesome endeavour and would be immune from the interrogation of others. Such a desire for mastery and immunity must be resisted.

(p. 22)

To state that research should be committed or action-oriented is not to imply any particular method or methodology. It is important to emphasise this. The methodological form of committed research considered here restructures the traditional relationship between researcher and 'subject', the 'subject'/'object' dualism that still plays a significant role in research. Instead of a one-way process where researchers extract data from 'subjects', this form of committed research encourages a dialogical process where participants negotiate meanings at the level of question posing, data construction and reflexive analysis. It includes in its definition a reference to reflexivity or self-reflexivity as a method to address difficult issues of difference in the research project as well as in the written text in an attempt to help promote a more ethical approach to educational research.

My methodology acknowledges the inevitable particularity caused in any research situation by the personal biographies of those involved. More than just acknowledging some inevitable 'intrusion' on the data, my approach tries to turn this interactive subjectivity to best advantage and actually capitalise on it. In doing this, I follow the line of some recent feminist, poststructural, postmodern and phenomenological critiques of traditional research paradigms which, each in their own way, challenge the assumption that research can, or should, produce 'objective' data, and which emphasise the role of the self in the research process (see the text below for actual references). Stanley and Wise (1983) stress the point:

We see the presence of the researcher's self as central in all research. One's self can't be left behind, it can only be omitted from discussions and written accounts of the research process. But it *is* an omission, a failure to discuss something which has been present within the research itself. The researcher may be unwilling to admit this, or unable to see the importance, but it nevertheless remains so.

(p. 162)

And as Reason (1991) has stated:

We can no longer argue that our inquiry is in any sense a search for 'truth'... We can very clearly accept the post-modern statement that we are in a situation 'after truth'. So within this field of emerging practice, we need a methodological inquiry into the question of quality: what is good research.

(p. 3)

Richard Rorty (1991) is helpful here. 'To say that we should drop the idea of truth out there waiting to be discovered', he writes, 'is not to say that we have discovered that, out there, there is no truth' (p.8). It is to say that our purposes would be best served by ceasing to see truth as knowledge of an unmediated reality.

Truth here does not refer to knowledge as accuracy of representation, instead it is to do with 'knowing ones way around', to 'somehow getting it right for the moment', though I hasten to add that this does not imply that there is only one 'right' way. It involves a change in conducting one's inquiries from a detached, individualistic onlooker standpoint, to a position of social involvement that is interactionist and materially constructionist (see chapter 3 for a more detailed discussion of this and the other changes this implies). However, while it is one thing to reject the traditional purpose of educational/social research, it is another to [begin to] generate a viable alternative.

Reason uses the term quality rather than validity in emphasising the need for a methodological inquiry into the question of 'good' research. He suggests 'the term validity is too ideologically laden, whereas 'quality' allows more space for us to formulate new standards and to draw on widely different fields of thought' (1991: 3). I am not so sure. I think the discourses of 'quality' like the discourses of 'professional standards' and 'competences' and the manifest desirability of their values and the eminently reasonable language in which they are discussed, actually tends to stifle necessary criticism. Additionally, in the process of arguing out alternative forms of research, concepts like 'validity' are seen as still being important, even if there meaning changes. So I will retain the term validity.

In this chapter I ground the discussion of reflexivity, commitment and collaboration in a reflexive account of my own insights and dilemmas as a first time committed educational researcher conducting long-term research within a primary school with Suzanne. It is not possible to address every point of concern, therefore, this discussion is limited to the main ideological issues that were important at the time. I have tried to describe and demonstrate some of the practice of committed reflexive research, not only with the examples I include, but also through exemplifying a degree of critical reflexivity in the content of the chapter and the way that it is written.

purpose and institutional context

Questions of ideology are perhaps best examined within the context of articulating the purpose of analytic work. As Lather (1991) has reminded us, the kinds of commitment we can make in educational research are often circumscribed, if not fully determined, by the social context of academic knowledge production. My own research, to an extent, has been transformed, as it became a PhD thesis [text]. Despite the prevailing endorsement of thesis research as a creative and innovative production, as a student, while accepting the need to challenge the existing theoretical frameworks and empirical paradigms, and feeling empowered by some of the literature, to an extent I had to struggle to reformulate my research because of the perceived notion of 'an acceptable PhD' with regard to unknown External Examiners.

One area of educational research that thus needs closer examination 'is the ritual practice of academic licensing i.e. the process of writing a dissertation in areas of qualitative research, and the social norms which govern such practices. Of course, much has already been written in a critical, reflexive vein about assumptions governing academic writing. Yet if we are to examine the ways in which social commitment of various sorts is encouraged and discouraged, we would do well to consider that arena where we are most deliberately socialised as academics: the dissertation process' (Levinson, 1998: 91). In schools of education and other applied disciplines, thesis/dissertation research has been opening up. It is now more common to find external examining committees more frankly supportive of committed participatory research. Yet, even where textual innovations in reflexive representation are encouraged or accepted, there still exists an implied mandate to produce something for the 'knowledge base' of scholars rather than for the educational actors at the research site itself.

And often enough, novice researchers internalise the expectations they have absorbed from faculty/departmental regulations and conversations and/or the disciplinary literature. Caught up in a

fundamentally conservative/conserving rite of passage, many novice researchers display their disciplined competence and learn to make their primary social commitments to their immediate supervisors and the knowledge base of the discipline, and in this way to themselves, rather than to the people they are working with [on?]. But why not support a variety of committed research practices attentive to local conditions and demands of both research sites and circuits of academic knowledge?

At least I have been fortunate to serve my 'apprenticeship' within a period of unusually intense academic ferment, concerned with change and innovation at the site of research. I think it could be said that I was one of the lucky ones. I was indeed 'lucky enough' to be encouraged to reflexively explore the kinds of commitments informing my research. And I was given encouragement when I described my research as a kind of 'critical intervention', though now, I couldn't say that this intervention was fully realised in terms of important change at the research site itself.

purpose: situating the research

The purpose of the research activity is intimately connected to one's perception of the nature of that activity. In my deliberations I came to the judgement that educational research is a unique form of social discourse (Rorty, 1979, 1982), a form of interaction which *is* about constructing disclosive spaces where educational researchers become more fully engaged with uncovering what Foucault (1977, 1980) called 'the mechanisms of power' in our society and in our organisations. We need to develop research strategies that provide individuals with the ability to come to terms with the diffuse nature of power that determine their lives – it operates unannounced in myriad social practices, including those we take as 'merely' discursive. Unlike, Foucault, however, I suggest we interrogate these discursive practices as ways to create change, and hope. Such a purpose 'posits the world as one of flux, with complexity, contradiction and human agency' (Popkewitz, 1984: 50).

Put within a larger context, social reality can be understood, in part, as a complex tapestry of interconnected discourses and conversations. Underlying each of these discourses is a set of conventions that give it a sense of identity and thus purpose. These conventions include such items as social location (i.e. where this discourse takes place), attributes of participants (such as gender, race, class, education, occupation, age, life experiences), style of communication (for example, verbal, written, visual, behavioural) and topics of communication. Each of us participate in several overlapping discourses throughout any given day, and within a given culture, there are numerous unique discourses that represent different groups and interests within that society.

As academics we have come to recognise the importance of understanding social reality through discourse, and as Foucault (1972, 1980) argues, systems of discourse represent systems of power within a given society. These discourses are attached to social practices and social conditions that define what is 'true' at any given moment in history. Although academics have come to recognise the value of investigating the social discourse of others, we have by and large failed to recognise our own analytic work (i.e. scholarship, research) as just another particular discourse that takes place within society. While in education, this

academic discourse is no longer dominated by the protocols that result in 'truth making', many of its conventions still exist. This discourse is still chiefly located in professional conferences, journals and books; it is still primarily a written and verbal form of communication; it still largely expects writing to follow the editorial practices of expository prose, and is still dominated by people who have advanced degrees. Perhaps most importantly it is an *informed* discourse. It is assumed that the contribution of an individual is the result of fairly extensive study of what others have contributed to relevant domains of thought and practice, as well as any additional experiences that have provided 'original' insights into the topic under consideration. It is also largely a *reviewed* discourse. Rarely is a given contribution to it made without prior review and subsequent commentary by one's peers. In the majority of cases these reviews are made without even knowing the contributors identity. The majority of academic discourse is also *public*. Journal articles, books and conference papers are available to anyone who cares to seek them out (though this assumes they are worth reading). Although the content and linguistic complexity of academic discourse makes it inaccessible to many individuals in our society, it exists in the public domain and is thus open for anyone to read and critique.

The implications of this orientation are fairly significant. Positivist research was justified largely on the premise that it would provide 'truths' about human behaviour that the society 'could then confidently utilise. But If educational discourse can no longer claim to provide these types of 'truths', then what is the rationale for having this academic discourse?

Given the perspective of research as a discursive social practice, my purpose in writing this text was not to prove or provide some rigid thesis, but simply to *say* (or write) something clearly enough, intelligibly enough, so that it can be understood and thought about. In this sense I see the purpose of my research as *pedagogical*. Similar to other forms of teaching, my purpose is to share ideas and information in ways that stimulate others to reflect, to think, to share and to act on this knowledge. As a result analytic work is perhaps, pragmatic in the tradition of John Dewey, but as Dewey would have been concerned to point out it is a form of pragmatism which is very much an ethical endeavour. Analytic work is most useful when it helps its readers and writers to gain insight into and improve the human condition in ways that are personally and socially meaningful.

Within this general pedagogical purpose, I had two specific intentions, namely to portray social reality and critically examine this reality within broad social and cultural contexts. Specifically, I sought to understand social reality in ways that would provide insights towards the creation of a more socially just and sustainable society. The purpose of the research project was not simply to describe and interpret [report] 'what is out there', but to analyse this reality in ways that work against those social, economic, political and psychological constraints and ideologies that keep us from creating a more just and sustainable reality. This moves research away from the more traditional emphasis on the 'emancipatory' ideology of the researcher as an essential aspect of committed research. Instead, what is brought to the fore is a rigorous scrutiny of the assumptions that shape the meaning of the research itself.

With Patai (1994) I am concerned about a kind of orthodoxy in educational research, which measures degrees of 'empowering' collaboration at the research site to determine its value. As McLaren (1994) argues, 'almost always this orthodoxy has been based on the assumption that 'emancipation' is some ideal state to be achieved' (p. 345). This was not the aspiration of the research project. Instead it was much closer to what McLaren (ibid.) describes as 'a critique of current conditions and more or less immediate attempts at concrete improvement'. Its referent was 'are things better than they were' in terms of our educational practices. It seems to me crucial to specify the many different kinds and levels of 'commitment' a more broadly conceived notion of committed research might entail.

I have taken as my guide the view that at the heart of good research lies good description and portrayal will likely be more educative than the ideological insights of the researcher who made the observations in the first place. The value of portrayal/good description or what ethnographers have referred to as 'thick description' lies in its ability to provide the reader with a vicarious experience. Perhaps one of the most unique cognitive talents that we humans possess is our ability to go beyond immediate and direct experience as a source of learning. Our facility to vicariously experience life from secondary sources is a powerful tool in understanding our own lives and culture. From this perspective, the power and perhaps ultimate contribution of this research project is to provide readers with an opportunity to envision the lives of informants (primarily myself, but hopefully also Suzanne) and then apply what they vicariously observe to their own situations. My aim is to provide a rich and expansive pedagogical experience. It is in this way that we begin to 'clarify and embrace, rather than manage, facilitate or empower (others to take part in) processes of social transformation.

If the purpose of research is pedagogical rather than 'truth making', then our own ideology needs to be 'open', there is a need to be candid about 'where I am coming from'. Researchers can no longer hide behind an aura of objectivity and neutrality. However, being 'openly ideological' raised as many concerns as it potentially addressed.

constructing a political identity

First, there is obviously the question of what ideology the researcher should identify and declare as his/her own. Perhaps it would be more accurate to refer to ideologies since, certainly from my own experience, I have viewed life from a complex and intermeshed web of different and even at times contradictory value and theoretical frameworks. I recognise and can articulate several ideologies, for example, pedagogical, social, political, ecological, through which I understand life. Although my 'core values' such as a commitment to social justice, compassion, social democracy and valuing all forms of life have remained fairly constant, the details of my ideologies are in a state of flux. During these years as a PhD researcher, my ideologies have been informed by an engagement with a number of individuals and [aspects of] intellectual traditions as emphasised in chapter one. Obviously there are contradictions embedded within these ideological systems of thought. However, my concern (as stated in chapter 1) was not to resolve differences, but to look to those areas of actual or potential agreement between competing theories, for the measure of my theoretical preference, for my touchstone (Lakatos, 1978). In this sense, I have not fully

reconciled these internal disputes. In fact I have little desire to remove the tensions from my consciousness, they are a creative analytic force. In deconstructive fashion I should place the word – ‘reconcile’ - *sous rature* [under erasure].

According to Stronach and Maclure (1997) the work of Derrida over the years ‘which could be seen as a prolonged interrogation of philosophy, has been characterised by departures into seemingly non-philosophical sites – such as literature, the visual arts, psychoanalysis, speech act theory – in order to gain the necessary free space from which to interrogate philosophy anew’ (p. 3). From such an ‘opening of a space’² it has been possible to ask of philosophy [and linguistics, psychology and literary theory] questions which they have been unable to ask of themselves, from within their own disciplinary boundaries (Derrida, 1990: 82, quoted in Stronach and Maclure, 1997: 2). This act of refusing to respect disciplinary boundaries has produced a positive ‘mutation which no area of the institutional discipline [concerned] has been able to perform (Derrida, 1990: 83, quoted in Stronach and Maclure, 1997: 2). It is precisely this ‘impurity’ – its resistance to containment within its ‘own’ disciplinary field, and its infidelity to the fences erected around other disciplines – that for Derrida, constitutes its power to question the axioms and foundational principles of disciplines. Such a ‘hybrid enterprise’ (as I called it in chapter 1, using the words of Sarah Whatmore, 1999: 27), and so familiar to Derrida, is now part of ‘the discipline’ of geography [and] education. These forays, these hybrid spaces, I suggest, share a concern to re-cognise analytic work, to open up meaning as a question, as a non-given: to study the *living* rather than abstract spaces of social life. I learnt my infidelity through the work of geographers such as Nigel Thrift, Sarah Whatmore, Gill Valentine, Gillian Rose and Doreen Massey.

In addition, many post-prefixed researchers suggest that our class, gender, ethnicity, age as well as our sexual orientation and physical condition influence the way in which we conduct research and thus must be addressed as apart of what it means to be ‘openly ideological’. Experience, personal discourse and self-understandings collide against larger cultural assumptions and discourses concerning gender, ethnicity, class, age etc. A certain identity is never possible; the researcher must always ask, not ‘who am I’ but ‘when, where, how am I - and so on’ (Trinh, 1992: 157). ‘Our autobiographies do have much to do with our ideologies. Although we might like to think that our ideologies are, as previously stated, informed by multiple value and information systems with the selection of one’s ideals coming only after careful study, the reality is probably more complex’ (Goodman, 1998: 59).

For me, being ‘openly ideological’ meant being aware of my basic value commitments and personal history, and recognising that this value system and background influenced the way in which I perceived and understood ‘doing research with Suzanne’. The researcher is under the obligation, briefly at least, to identify [in some way] his/her ideological commitments and aspects of his/her biography so that the reader can take this information into account when interpreting the study’s findings and analysis. My hope has been to create a text open enough and evocative enough on its various levels of [life’s] construction that it will work in ways I cannot even anticipate. But, if more information than this is required, I may have to rethink the way in which I approach and write the study of educational practice.

Perhaps the burden of openly ideological research also falls on the reader. That is s/he should read the findings of a given research study with the knowledge that they cannot be disassociated from the life of the researcher. As stated in chapter 1, I do not make the assumption readers naively believe that texts are in some way related to a referent out there. I believe somewhat more that '*in the text only the reader speaks*' (Barthes, quoted in Lather, 1991: xx, original emphasis). But in recognising Roland Barthes (1977: 148) comment that the unity of texts lies not in authorship and writing but in the destination of written work, in other words the creative process of reading, I am not so convinced that as active researchers we should submit completely to this notion of the 'death of the author'. Barthes indicates that one can never control completely the ways in which texts are read. Yet, I do think there are possibilities for educational researchers to creatively construct narratives which open up to readers in a way that crosses the barrier between mainly conveying information, and primarily disclosing an act of life itself, a subject to be vicariously experienced, analysed, even enjoyed aesthetically. The literary turn in the social sciences offers us fresh insights into the textual dimensions of social inquiry and vicarious social experiences. We must seek to turn these insights and such experiences into useful pedagogical tools. Developing the rhetoric of writing will help educational researchers find new ways of intervening within public life and may enable us to reach wider audiences in a more effective way.

This being said, I argue that researchers are not trapped by their ideological commitments and therefore need to make every effort to reflexively situate his/her ideology during data collection and analysis. They are not a container into which data is poured. I attempted several strategies with this in mind. First, I made a conscious effort to empathetically 'take on' the perceptions, attitudes, feelings, ideas and meanings that Suzanne shared with me as if they were my own. Through this awareness, the researcher temporarily 'puts aside' his/her own perceptions in an attempt to 'see' life from the perspective of his/her co-workers/informants. While it is impossible to conduct research with a blank mind, the ability to develop empathy with others is I think, central to collaborative research. While it is never easy to vicariously experience co-researchers/informants lives, without it, doing any type of collaborative/participative research would be nearly impossible. Second, and perhaps most importantly we made specific efforts to look beyond the obvious, to pay attention to all aspects of our developing relationship and thinking. Although I did not conduct value neutral research, I did take concrete actions to avoid having the research become a mere confirmation of my previously conceived ideology.

Conducting committed research is filled with pitfalls, but the alternative of conducting 'value neutral' research is spurious. Although we can never get away from our ideology and biography, we are not enslaved by these aspects of our lives. The issue of ideology is one of reflexivity, textuality and much speculation. Disclosure of ourselves as researchers is important, but the comprehensiveness of this disclosure is uncertain. My background as a white, working-middle class [?], middle-aged male, who has been attracted to left social, political and pedagogical values and ideas has certainly influenced my work as an educational researcher; however, identifying the way actual elements of 'how I am' exactly motivate me to 'read and act in the world' in the way that I do continues to be beyond my reach. Disclosure, then, is

never a warrant for the recognition of an essential self, but rather, as stated above, is the offer of a vicarious experience.

the issue of relativism and accountable situated knowledge

Conducting committed research raises [for some] the issue of relativism. Framing the post-prefixed antipathy for teleological theorising as crude relativism is misleading. As Eisner (1983) points out, discrediting meta-narratives and totalising perspectives, especially those that speak in the name of objectivity, neutrality and universal truth does not result in the loss of reasoned analysis. Here, Donna Haraway (1991) is particularly helpful. Such narratives and perspectives produce disembodied, detached, unlocatable and *irresponsible* knowledge claims (p. 191). For Haraway, furthermore, irresponsibility means 'unable to be called into account' because it purports to see 'everything from nowhere' (p. 191). 'It follows from this that a spurious doctrine of scientific objectivity provides an ideological veil – a ruse Haraway calls a 'god-trick' – simultaneously beclouding and reinforcing existing and unequal power relations (Merrifield, 1995: 51).

But this argument does not mean that any viewpoint will suffice. Again, Haraway is helpful. The claim of 'equality' of positioning (seeing everything from nowhere) is a denial of responsibility and committed enquiry. Relativism, Haraway argues, is the perfect mirror twin of totalisation in the ideologies of 'objectivity'. Relativism and absolutism present themselves as commensurate 'god tricks': both deny the stakes in location, embodiment and partial perspective, both 'make it impossible to see well' (p. 191). To this extent a committed and situated knowledge [and research] offers a corrective to the 'god-tricks' of relativism and absolutism, of positivism and some postmodernism: situatedness implies that an understanding of reality is accountable and responsible for an *enabling* political practice. Ultimately, then, the realm of politics and ethics (what we value) conditions what may count as 'true' knowledge. The fact that grand ideologies are inherently problematic does not mean that all thought is equally arbitrary. This conceptualisation of situated knowledge permits a theoretical and political alternative bold enough not to relinquish some sort of inclusive, ethical anchoring to analytic endeavours, 'yet acknowledges 'otherness' and 'difference', and recognises that a partial and partisan perspective is preferable precisely because it can be held accountable (Merrifield, 1995: 52).

Ideology in itself is not the problem as long as it maintains its essential vulnerability. My analysis of Holly Hill may give an impression of certainty, and that I act upon my understanding of life *as* if it was 'true', but as Rorty (1982) reminds me, I know nothing for sure. The value of any given ideology and the analysis that emerges from it must be contextualised within a specific sociohistorical time and place. As Lather (1986: 7) argues what is destroyed by the post-prefixed suspicion of authoritative accounts is not meaning, but claims to the unequivocal dominance of any one meaning. In rejecting the supremacy of grand theories we are not obliterating our ability to make rational and moral judgements.

Perhaps the concern over relativism is an expression of power-relations within academic settings. Some academics (for example, Harding, 1986; Lather, 1988) have suggested that relativism is an overriding

concern only within an intellectual context in which academics search for a privileged position as the bestowers of certainty. For example, Harding expresses a perspective of many feminist researchers:

Historically, relativism appears as an intellectual possibility, and as a 'problem' only for dominating groups at the point where the hegemony of their views is being challenged...the point is that relativism is not a problem originating in, or justifiable in terms of women's experiences or feminist agendas. It is fundamentally a sexist response that attempts to preserve the legitimacy of androcentric claims in the face of contrary evidence.

(1986: 10)

If there is some truth in Harding's assessment that conventional social science including education reflects a masculine, Western cultural ethos, then it is likely that charges of relativism do not illuminate the weaknesses of post-prefixed perspectives, but merely serve as a strategy to maintain this patriarchal hegemony.

Although charges of relativism should be seen as problematic, it is important to emphasise that in rejecting 'grand' ideologies of social reality, it is not being suggested that analytic work must remain trapped in theoretical minutia that has no value outside of a highly specific time and cultural setting. Harding (1990) raises an important point regarding this issue in her analysis of feminist science that 'this [relativism] would not simply be an epistemological problem, but a political one, for in the absence of any criteria of validity which had been mutually agreed, it would only be the most powerful social groups who could successfully defend their interpretation of truth' (p.117). Giroux (1988) suggests that we view ideologies as a heuristic device rather than an ontological category. In this way, researchers can examine particularistic phenomena in light of larger contexts, in which it is possible to make connections to those mediations, interrelations, and interdependencies that give shape and power to larger political and social systems and practices. This perspective allows academics to examine their relationship between 'micro' and 'macro' worlds within a social and historical context while at the same time maintaining their subjective and intellectual vulnerability. Whereas grand theories are likely to subsume and distort 'reality' into a totality of thought, this perspective facilitates academics efforts to tell a 'bigger story' such as a socio-ecological crisis, the rise of capitalism or patriarchy. If we discard the role of ideology in our work, then we run the risk of not being able to adequately examine social reality in its fuller complexity, thus weakening the pedagogical power of educational research.

collaboration

The initiative for the inquiry, its primary purpose and the methodology were defined initially by myself as the initiating researcher. Having formulated a basic research framework for negotiation, I found myself in the ideologically uncomfortable position of having to use any power and influence I could muster to sell an idea which is based on the principles of participation, power-sharing, and peer relations. It felt a bit odd. But there did not seem to be an alternative. My first contact with the teachers of Holly Hill School was framed within an initiator-interested other relationship.

I chose to collaborate with interested teachers to reveal something of the way teachers thought, acted and reflected on their environmental education practice. This attempt to be a collaborator as an outsider to the setting was a new experience and stretched my faith in participatory and committed research designs from the start. As recorded in my research journal:

Day one. All sorts of questions swirling through my mind. What is the school like? What are the teachers like? Will this research project work? I have travelled up and down this stretch of the M1 many times. Off at junction 27 and into unknown country. Sunny day, rather pleasant undulating scenery, semi rural, good quality housing with the occasional hint of the former importance of coal mining. Steep descent and the village is sign-posted for the first time.

I am entering a place, a setting that I know nothing about. I have no previous experience of this sort of thing – collaborative research that is committed to improving the practice of environmental education. The confidence I had during the early negotiation of the research project seems to have left me – now that it is the first day of putting it into practice. I don't know Suzanne, Hazel and Francis as friends or colleagues. They can't be compelled to do the research – what happens if it doesn't happen? I seem to have a lot invested in this project. What are the teachers actually going to get out of this? Can an outsider initiate this kind of committed research? Would Suzanne, Francis and Hazel have initiated this kind of research for themselves?

Turn right at the pub beyond the brow of the hill, an open area of green, some older cottage houses and into a housing estate. Paper boys, dogs being exercised by their owners and a trickle of children leaving home to start another day at school. I have plenty of time. I might arrive before the teachers. I wonder what they are like, what kind of school it is. It feels like it is my first day at school.

There is the post office Suzanne mentioned – next left and straight down and through the school gates. Lovely grounds, 70s school building? Good view across the valley, car park at the end of the drive. Empty – which space – I do not want to park in the wrong place.

I sit in the car for a few minutes and watch others arrive. I remind myself that Suzanne (on behalf of the other teachers) and myself have already spent some time negotiating procedures for the ethical conduct of the project and our roles as co-researchers. A friendly face - my head still swirling with ideas, my senses on full alert, no time to panic, switch off tape recorder – good morning Suzanne.

(My research journal, September 1994)

Suzanne was willing to open up her professional practice and life to me – on her own very accommodating and sincere terms. I do not think she was ever interested in the usual trappings of teacher-teacher educator collaboration, such as co-authorship of papers for publication and – what else ...self esteem, status at school.....who knows.....I think she had these in plenty anyway.

Suzanne was always very enthusiastic about the possibilities of a 'collaborative project'. As each of us revealed more of ourselves to the other a sense of trust developed and the nature of our relationship changed. The power dynamics shifted and reshaped themselves over time. We became good friends and our sharing went beyond the confines of the original research project. There are several issues that need to be emphasised about our collaborative venture. As I locate myself now three years on (September 1999) from the research project I can discern changes in my attitude to ethics in committed research and in the ethical conduct of my research practice. 'With Eisner (1991) I share a desire to be ethical with an

acknowledgement that at times the ethical facade is shielded by the research rhetoric and undermined by the complexity of actual research decision making in real life research situations' (Street, 1998: 146).

Initiation, ownership and informed consent in unstructured spaces

The initiation of an opportunity for collaborative inquiry is only a first small step in a long and sometimes complicated process of negotiation during which ownership of the idea and the initiative required to progress it passes to all the participants. When collaborative research is initiated by an individual outside of the research setting John Cosier and Sara Glennie (1994) state that:

ownership exists in its ideal state when an individual or group is empowered to give expression to their own sense of knowing about a situation. Knowing must then be exercised in ways that make sense to the individual, not subjected to remote, detached diagnosis by experts. Finally, if change is thought appropriate, the creation of alternative courses of action should be developed which have genuine relevance to the individuals concerned – conditions need to be such that they feel able to 'buy in' to understandings of cause and possible solutions. It follows that ownership cannot be *given* to someone: it can only be elicited and developed through active participation in all stages of a planned process.

(p. 99, original emphasis)

In initiating the research project my aim was to work towards this ideal of ownership through active participation. This is to emphasise the tension between facilitator initiative and shared ownership, the balance between initiative, authority and democracy.

An important issue around ownership and negotiation concerns the idea of informed consent. When we invite other people to collaborate with us in committed research we are ethically bound to acquaint them with the potential issues that their involvement might entail. In the production of knowledge with 'human subjects' the ethical concern lies with the manner by which people are recruited into the project and treated during their involvement. The concern is that the research does not harm the people involved, whilst it enables the generation of data. The adage *do no harm* is hardly enough of a safeguard for relationships within a committed project, rather the emphasis must be on how we collaborate, develop collegiality and how we treat each other respectfully as fellow human beings. This kind of rhetoric reads well, but is hard to achieve, it requires constant thoughtfulness.

And as Annette Street argues:

This assumes in us a capacity for foresight which requires a reliable crystal ball. As a critical project takes a collaborative approach with a specified intent of either redress, improvement of practice or change of policy, then the outcome is never predictable. The outcome will be redefined as the emergent issues are addressed. If we are unsure of where our research activities will take us how can we provide *informed* consent to those we travel the research journey with?

(1998: 150)

I do believe that Suzanne did become involved on the basis of informed consent. However, the fact that the research framework needed to provide an 'emergent space' for the spontaneity and creativity of inquiry, did prove problematic. There were two aspects to this. One, in representing the nature of a collaborative inquiry

during the invitation/preparatory phase I was aware that it could evoke anxiety with its lack of structure and uncertainty, with its unpredictability regarding specifically desired outcomes. I was particularly concerned that even as I conscientiously followed our ethical procedures I felt that Suzanne was consenting to be part of something from outside of any of her own frames of reference. But, she accepted my explanations in good faith, presented no outward signs of anxiety or concern, and to all appearances there was no coercion. I still ponder Suzanne's interest and commitment over the two years of our collaboration; she was not forced into the research project by anyone else, it did not give her a quick solution to an existing problem, nor status nor privilege, and neither did she want to control the research results in terms of publications. To put it bluntly: so what was she getting out of it? During times of cynicism, I might suggest that the loss of Francis and Hazel meant that Suzanne felt she had lost the 'right to withdraw'. This right is, of course, central to the understanding that the persons participating in collaborative research are volunteers, and as such free agents able to withdraw themselves or their data at anytime. The right of withdrawal may not create too many problems in studies with a large sample size but in this particular research project the loss of any participants, when you start with only three, is inevitably problematic. However, such an observation would belie Suzanne's generous commitment to the research and to me.

Two, the 'unstructuredness' of the research helps to describe how I think Suzanne [initially], Francis and Hazel understood the research project and why Francis and Hazel gradually 'drifted away'. If the initiator is completely open and flexible the forming group will have nothing to get its teeth into at this early tentative stage, and so may flounder around in ambiguity and confusion (Reason, 1988: 25). However, in trying to make a space for spontaneity and creativity of inquiry, a framework that supported open exploration rather than being determined by a predetermined plan of action, I observed that implicitly structuring processes did emerge. They are not the explicit structures that an initiator may negotiate or lay down at the start of the research project in order to direct, focus or control the direction of the inquiry. They are implicit processes that are expressive of felt need at the time, of self-understandings of the research process - of the teachers - which led to subsequent action. Here, I made two fundamental mistakes.

First, I had under prepared the teachers for their participation in such a project. While I had devoted some considerable time to explaining the [desired by me] nature of the research process and trying to build relations, and although none of the teachers either at the time or subsequently stated that they felt unclear about objectives and direction in the early phases of the inquiry, I think this preparation was not sufficient. The way time is spent on building group relations is essential, in particular time spent nurturing a sense of belonging and building open communication. Group building can be achieved in many ways, but should take place in a manner which is appropriate to the culture.

It should be said that I did not want to use a model of strong and active initiation/facilitation, such as using group-building activities to get the group together (the teachers made it clear that they did not regard these activities as appropriate or necessary), identifying specific inquiry agendas, feeding back, summarising etc. While they can be crucial in terms of teaching the group the process of collaborative inquiry through doing

it, the danger is twofold: the initiator completely takes over the inquiry process, and/or the activities may deskill and insult group members, inhibiting the development of the group.

What I should have done better was amplify the 'natural' developmental processes of the group, that is as a group of teachers. I also recognise how important it is to capture the moments naturally offered for building more collaborative relationships, often at unexpected and awkward times. In consequence, working within an 'unstructured space' induced Suzanne [initially], Francis and Hazel to see the research project very much in terms of 'doing it for me'. They were consenting to be part of something from outside of their own frames of reference. They welcomed me into their classrooms on the terms I unwittingly had created for them.

Second, in the early stage of the project I was directing the inquiry and asking lots of questions. The teachers may have felt more like respondents than co-researchers, being frequently placed in a reactive position. Perhaps inevitably, where flourishing in a gendered culture is still one of the greatest challenges, their actions were an appropriate response from women teachers who felt themselves to be token participants within a collaborative inquiry. During the early stage of the research project we had not managed to establish the beginnings of an effective collaborative culture based on something other than what they may have perceived to be dominant male norms. This I think is the reason for the way that Suzanne [initially], Francis and Hazel saw the research project - in terms of 'doing it for me'. It also explains why Francis and Hazel drifted away from the research project. Maybe with more time things would have been different. Fortunately, Suzanne was prepared to give me that time.

I was trying to abdicate authority very early in the research process, to create space for the development of peer authority. My aim was to exercise no more power than was needed to establish the project - allowing power to devolve to participants as quickly as possible. I acted on two important ideas. One, the pragmatic notion that moving forward by engagement with a worthwhile task with attention to individual and group needs would lead to a creative group process. Two, that it was important to recognise and accept emergent chaos, and not try to tidy it up too prematurely.

While my facilitation was planned and active in the sense of working towards abdicating authority I acknowledge the place of serendipity in this work - things seem to fall into place at the right time. Like chaos, serendipity cannot be planned. The attitude needed seems to be one of control and surrender, bringing direction to the work while always anticipating the unplanned opportunities that arise and being willing to go with them. The balance between initiation/facilitation, control/surrender and the negotiation/nurture of ownership is crucial. I have used the notion of research/inquiry as creating a space for something to happen. The research project points to the potentially creative paradox in the tension between structure and lack of structure (Reason, 1994:195).

In future, I would more carefully prepare coresearchers for their participation in committed projects. I would run a series of workshops as part of the initial setting up of the research project. These workshops

would explore possible research strategies and enable prospective participants to begin to explore some of the ethical issues that revolve around such ownership and responsibility for themselves. They would also explore the potential impact on their practice and their workplace. The workshops would support participants in thinking about the technologies of power inherent in the collaborative situation and the research process. Participants would need to propose their own strategies to deal with ethical issues of for example: negotiation, obligation to others, responsibility and the potential for upset or harm. After the workshops there would need to be a 'cooling off' period of several days to enable people to think further on the implications before commitment. I still suspect, however, that while such a procedure is a step in the right direction, it is not all-encompassing or full proof.

Negotiation

Committed research projects avow a democratic intent that is intended to critique and disrupt existing power relationships. Here an exploration of language and discourses is crucial to such projects. This can be illustrated in the research project by reference to two particular concerns, the issue of negotiation of ownership of the project and the negotiation of outcomes. Negotiation is an important consideration in collaborative research. The term tends to appear regularly in ethical statements. I understood that negotiation would need to take place over time on both planned and emergent events and concerns, what I did not fully appreciate was the way in which my research design reflected my research interests and that the outcomes I was attempting to negotiate were most consistent with an academic approach.

I always tried to display shared ownership of the project, both orally and in written form, by reference to *our* project whenever possible. I regarded this as both a way of demonstrating my democratic intent and as a way of encouraging progression of ownership, that is for Suzanne to become as fully involved as possible in the research, to take-up the offer of joint responsibility and ownership of outcomes. The use of the term was only infrequently reciprocated orally by Suzanne, and the term never appeared in anything that Suzanne wrote.

Yet there was no sense that Suzanne shared equal ownership of the entire research project. The words 'our project' came to mean the collaborative activity of data generation, analysis and initial theorising, it did not extend to the final theorising and writing of this text. (I do not wish to imply a linear process here – one of data generation, analysis and initial theorising – all proceeding one after the other and before the grand finale, the final written text.) Initially I had planned to negotiate with Suzanne to co-author some position papers for publication and inclusion within the text. Co-authorship had been a topic of conversation back in the early 1990s with higher education colleagues. However, coauthorship was not achieved in any form. Co-authorship was discussed several times, each time I invited Suzanne to 'write with me' but each time she very politely declined to do so. I was initially somewhat surprised at Suzanne's refusal and also 'concerned at the power she seemed to be investing in me – the power that is inherent in the one who chooses what words are reported and how ideas are re/presented' (Street, 1998: 155). But as Eisner (1991) argues:

We do not like to think of ourselves as using others as a means to our own professional ends, but if we embark upon a research study that we conceptualise, direct and write, we virtually assure that we will use others for our purposes.

(p. 226)

When I put the pieces of the research process together in this way: conceptualisation, initiation, direction, writing, Suzanne's polite and caring resistance can be understood - the fact was that I had so much more to gain from the process - and so was required to be the majority shareholder of the final reporting and to raise the theorising to another level of analysis - that of the academy.

A related issue was that, while Suzanne was not interested in co-authorship, she was willing to write for the research project - what I described in chapter 4 as 'writing for me'. Her writing always seemed to be expressed in terms of 'writing for me' - of writing what she thought I wanted [to know] from her. The significance of 'writing for me' is perhaps expressed in what she actually wrote when I asked Suzanne to write about 'writing for yourself and others'.

Suzanne

My writing so far, has mainly been at others' request. I am asked to write articles and books covering specific educational topics and often to particular formats. I seem to have the information and ideas needed. Manipulating and tailoring my ideas for specific people is relatively easy. A restricting framework can also be reassuring. While I do enjoy this process, I would like to write purely for myself - that is on topics and issues that I choose. As I have done very little of this, I do wonder if I could actually do it.

If I am writing for others I do a lot more thinking and note making, pages and pages of notes, before I actually feel ready to present the work. In these cases a deadline is always helpful- as I know eventually I do have to write a final version.

I am writing now as if I am writing for myself. I suppose I write (i) for publication - as described above, when others will read the words and (ii) write for myself. If I am writing for myself I can write immediately, I put down whatever I am thinking, and it helps to clarify my thoughts, even though the writing itself might appear gibberish and incoherent. I write what is important to me as though I am having a conversation with myself. I also write like this if I am writing to my friends, and how I have written for you. This is when only I (or now you) will read this - as if it were spoken and therefore transient. When I write There is a difference in style and familiarity. You lose some of yourself when you write for others - the writing becomes more formalised and less everyday. I know what I write for you isn't

going to be scrutinised as a book or article might be, therefore I can write anything, repeat myself, digress etc - and I expect you to edit, sift out anything useful and disregard the rambling bits.

I started writing for publication in 1987. My articles for educational magazines and journals reflected the work I was doing in the classroom. I submitted the first article as an experiment really, and was commissioned for everything after that. The articles often had an environmental theme even if they were specifically about teaching science or geography, history or art. At first I set out to promote practical activities - seed planting, habitat creation, growing trees, generally enhancing the school grounds. This was something I had done ever since I came to Holly Hill. I like to be engaged in a project and I think it is important for children to have the opportunity to be part of something unusual and interesting.

It seems any project I've enjoyed I have written about. Occasionally people who have read the articles have written to me and asked for more information. I recall helping someone in Scotland set up a wildlife garden with children. I suppose there is a progression in my writing in that I started describing projects and transmitting my enthusiasm, perhaps when environmental education was only really supported by people like myself. Now when I write I consider environmental issues much more and highlight current concerns and relate these to the national curriculum. Because of my writing I am sent books to review and teacher's learning materials to assess. I very much enjoy this per reviewing.

Although I have always done a lot of writing, writing to think and reflect on my own teaching and everyday school experiences is not something I have done much of. We, that is my colleagues and I, are always discussing particular issues and events, but this is conversation in the staffroom and classrooms, in the corridors and dining room, and all through the day. We do not normally write to communicate, unless for some specific purpose. (November, 1995)

It was not that Suzanne was incapable or lacked interest in writing, she had already written two primary science education books and several articles for primary education journals. She also recognised two very different ways of writing: for herself and for others/publication. Reflecting on research writing within the collaborative project as a technology of power, I would argue that the process had a tendency to relocate

the position of the coresearcher to the position of a respondent rather than interpreter of meanings. Further, by transcribing discussion data and making notes on classroom observations and conversations, and using this as the basis for further discussion Suzanne was also moved from her everyday domain of professional interaction: from the oral to the written. In this sense I may have disempowered her by moving on to terrain that was not part of her day to day practice.

This raises the question whether a researcher who functions through a process of writing to describe and analyse a specific cultural practice that is based more on oral transmission of knowledge and understanding can develop collaborative research. There are certainly ethical issues involved in inviting people to become coresearchers in educational research projects which are based in academic practices and discourses which have the tendency to marginalise the differently structured practices of teachers. The balance of power is skewed from the beginning in favour of the researcher. I think this is why Suzanne was concerned to 'write for me', it was a process of what she saw as 'doing what was expected', of writing what she thought I wanted her to write, rather than being herself through her writing.

Fliesser and Goodson (1992) suggest that cultivating collaborative relationships is incremental in nature. They argue that there is a need to 'negotiate and renegotiate roles at various times throughout the dynamic process of the research project, keeping in mind that participants interests and needs change. Project members should be able to negotiate their roles when they feel it is necessary' (p.49-50). This in turn would impact upon how and what gets defined as relevant, useful and enabling questions within the relationship as well as shaping the interaction of those involved. This, of course, raises the issue of how at various stages in the research to support teachers in their systematic reflections about the problems and issues of curriculum and pedagogical change in schools. In the collaboration with Suzanne this happened more implicitly than explicitly, through the concern about the research process and the research outcomes (though see section: reflexivity and situating knowledges).

All of this raises a question about benefits to Suzanne. In every ethical statement researchers are expected to detail the benefits of the research process to the coresearchers/participants. When publication and co-authorship is an outcome obviously not valued – what did she value? And what were my responsibilities to her in tangible terms? By way of an answer I would emphasise that I no longer expect the kind of modernist consensual agreement [on outcomes] I had expected to emerge when I started this research project. A post-prefixed project enables the divergent voices and expectations to disrupt the symmetry of the consensus process across the whole research project, where power can be exercised subtly when we adopt an artificial semblance of *equality* based on the notion of consensus rather than understanding equality [of outcomes] in terms of difference. I would now be more comfortable with greater ambiguity in terms of outcomes. During negotiation I would try to enable each member of the group to explore what a satisfying outcome of the research activity is for them personally. Whether it is publication, co-publication, improvement of a situation or practice, development of a policy, or some form of personal learning/benefit that they want, then this is affirmed. The power sharing democratic focus would not be on equality in

contribution and outcomes but on the level of satisfaction of personal, professional, group, community or social goals.

Even this strategy would have to recognise that unnegotiated desired outcomes are equally likely to occur. They may not be publicly and formally expressed either at the beginning of the inquiry or at any stage thereafter. Individuals may not even be consciously aware of all their motivations for joining a collaborative research project.

To say that I experienced with kindness and tolerance Suzanne's resistance to collaboration other than on her own terms would be unfair. Such a logic denies the complexity of human relationships and the forms and expressions of the possibilities for collaborating with the other. I have to say I cannot fully articulate why Suzanne volunteered to be involved or why she continued to be involved for two years, but I was very grateful to her. As Street (1998) emphasises research remains a constantly challenging and humbling engagement with ethical dilemmas (p. 158).

For all its democratising intentions committed research still invariably involves a relationship between an *academic* researcher and *non-academic* research participants (Jordan and Yeomans, 1995). As a result, this methodological drawback, the academic/non-academic distinction, may continue to perpetuate an implicit power imbalance between the two – an imbalance that my own research did try to challenge or subvert – but with a lack of recognition of some of the important factors involved.

participation

In chapter 4 I outlined the idea of collaboration I wanted to work with or rather move towards/achieve. What I did not fully appreciate at the time was that these categories are not really ways to classify whole projects. Collaboration is more dynamic than these classifications suggest. It is my experience that collaboration will vary and change between these types almost from moment to moment, and certainly at different stages. There were times when Suzanne made suggestions about how to proceed, but at other times I took the lead. So, as David Tripp (1998) suggests 'rather than use a classificatory scheme to characterise a whole project, it is more useful to use it to map power relations at particular points with a view to clarifying them in order to ascertain that everyone is comfortable about the levels and direction of control' (p. 42).

reciprocity and mutuality

Some might argue that this research was exploitative. After all, the relationship was never fully symmetrical or reciprocal. From the beginning, I designed to use Suzanne's participation as a source of 'data' in a committed study, with the hope of improving practice. One could even say, most critically, that I have parlayed her cooperation into material and career gains. On the other hand, as I have tried to show in the way that we conducted the research and in what I have argued here, mutuality did become an emergent quality of the relationship, though I did retain ultimate control of the textual product of our collaboration.

If Suzanne was to send me a letter today about reciprocity/mutuality, she *may* have written something like the following. The ideas and phrases presented are taken from various brief discussions we had about the research project and recorded in my research journal. I write it in this way because, as emphasised in chapter 2, a critical consideration of the collaborative practice itself largely remained unrealised. A few of Suzanne's 'stock phrases' remain in my head and are used to shape this letter:

Our relationship changed over time. I remember your emphasis on collaboration: that we were all equals, we all have things to offer, that we can learn from each other. We all agreed on the way we were going to try to work together, even though this was an unfamiliar way to carry out research for Francis, Hazel and myself. It all sounded very promising, worthwhile and steeped in reciprocity. But it took time to attach these research words to actual experiences, and a great deal of personal effort to begin to make these ideals realisable.

Initially I think I felt a mixture of curiosity and flattery that I was to be part of the research project, but most of all I think I felt out of my depth. One significant stumbling block was that I wanted to 'keep up' with all the developments taking place in environmental education. I knew things were changing quite quickly from my experience as Trailblazer Co-ordinator for the LEA. I felt then that it was almost a bandwagon effect – so many publications, conferences, in-service sessions and examples of good practice to be aware of. The research allowed me – even forced me – to once again try to keep abreast of such developments in environmental education.

I thought that was what was required of me to work with you. What does Roger want me to say about this particular development, this particular idea, and this particular article? Your endeavours to involve me in the research were usually met with the unspoken response of 'What does he want me to say? He's the expert, what can I possibly come up with that is going to be of any interest to him? I am a teacher not an academic, we don't have philosophical conversations in school. I told myself that although I wasn't able to discuss and supply the information you wanted, I perhaps helped in different ways.

I think initially the environmental education literature was a device for making me feel more comfortable with you, more of an expert, for creating a better working relationship. With time I think I began to realise this wasn't what you really wanted from me. After that I wasn't so worried about the literature, I read for myself what I could, and also what you gave me from time to time. I began to realise that I could only be 'me', I had to feel comfortable with myself.

The worry about the literature was really part of a bigger concern - that I was unaware of the part I could play in the research project. We talked on many occasions about the project and what my contributions could be, but again I think my perception of research got in the way. As a result my contributions were more in terms of 'I'm doing this because he has asked me to do this'.

It took a long time for me to realise the significance of what you were saying at the very beginning and what the approach to research meant: when talking and writing about my life and my experiences the only expert involved is me. I didn't see that at all to begin with. Not that I said or wrote anything that would have changed the sense or meaning of my experiences as such – but I did find it hard to question things and help to direct the research. To begin with I was unaware of the possibilities – of the part I *could* play in the research, or of the necessity of playing a part, that I wanted to play, of whatever stature.

But I welcomed the opportunity to be involved in this way. I enjoyed the discussions, both routine and more formal. I was impressed with the importance of the issues we dealt with and the thoughtfulness with which we discussed them. It made me realise, once

again, as we do in moments of self-awareness, how caught up we are in our own lives – in what might be.

Keeping up to date with the literature possibly provided for Suzanne insights into how I, in my research role, was attempting to make sense of her practice from my own positioning. At the same time Suzanne began to use the literature to reflect upon her own practice. In this sense the literature became a trading point in our relationship, that according to Goodson (1991) rests upon the differential structural location of the research facilitator who, as an 'academic', has the time and resources to collaborate with teachers in developing genealogies of context that can provide teachers with aspects of the 'wider picture' (p. 148-49). As Goodson notes:

Each see the world through a different prism of practice and thought. This valuable difference may provide the external researcher with the possibility to offer back goods in 'the trade'. The teacher/researcher offers data and insights; the external researcher, in pursuing glimpses of structure [*practice*] in different ways, may now also bring data and insights.

(1991: 148-49)

The act of writing the final version also made me reflect upon my life in relation to Suzanne's and the notion of reciprocity/mutuality. I could not escape the fact that I was responsible for this and the responsibility was unavoidable. The text produced raises the key issue of my authority to write about, and for, another individual, who is a member of a group to which I do not belong. Commenting upon this dilemma, Richardson (1990) asks, 'for whom do we speak, and to whom do we speak, with what voice, to what end, using what criteria?...How does our writing reproduce a system of domination and how does it challenge that system? What right do we have to speak for others, to write their lives?' (p. 27)

Richardson's view that there is no one right answer to the problem of speaking for others, at least enables the possibility to 'try out' different modes of representation, and we are left having to realise that writing, as an intentional action, is a site of moral responsibility and there is no way to avoid deploying one's power if one chooses to write in this world. As Richardson comments:

Rather than decrying our sociohistorical limitations, then, we can use them specifically to ask relevant (useful, empowering, enlightening) questions. Consequently, the most pressing issue, as I see it, is a practical-ethical one: how should we use our skills and privileges...As qualitative researchers, we can more easily write as situated, positioned authors, giving up, if we choose, our authority over the people we study, but not the responsibility of authorship over our texts.

(*ibid.* p. 27-8)

Suzanne's gains

The above discussion about collaboration ultimately raises the question: what did Suzanne gain? The great pity is I have no direct comments from Suzanne on this issue. This is one of the refusals I discuss below. Questions about what Suzanne gained from our relationship, beyond the usual academic trappings already identified, are difficult to answer. I think it was more than just offering her an audience. It seems that in telling and writing about moments in her life, reflecting upon her life, reading about herself through my

writing, seeing her practice located theoretically through my interpretive framework, writing 'for me', seeing the impact of her writing on others, reading academic texts, teaching university students, meeting new people, and reacting to all of this, Suzanne had opportunities to step back from her life as lived and the representations created of it. In doing this, Suzanne seems to have changed her relationship to specific experiences by occupying the paradoxical positions of teller, writer, significant actor, reviewer and reader. Suzanne has been a character in the story she has told/written as well as a witness to another story which involves her. The experience of being involved in research, perhaps examining her own part within the project [though she would never really discuss or write about this], and of telling self-stories, can be constraining, but it can also offer the potential to re-frame oneself and ones surroundings. Perhaps it was also a way of 'networking' across established boundaries, of opening up communications between teacher and academic in a form that was not so bounded by constraints of position and role. Maybe the research project enabled Suzanne to distance herself sufficiently from her daily roles and relationships inside 'the system' in order to share experience with an interested other. She could have seen the research as a resource to draw on for her own educational development.

On this matter, the potential of the methods used to change Suzanne's practice is also open to question. Clearly the methods used did lend themselves to situated activity, which were designed to promote both conversation and critique, but also to generate change as an integral part of the research. This was not done, for example, within the parameters of a more closely structured action research cyclical process of planning, action, observation and reflection. Here, teachers identify discrete aspects of their practice which are problematical and need to be changed, and then evaluate the actions they take to effect change. The emphasis within this research project was more towards the possibility of operationalising a form of environmental education, commonly termed 'education for sustainability', by developing knowledge about that form of education within the practice of research itself, so that education for sustainability would become not just 'the topic' of research via a gathering of data, but an enactment within the research practice itself. In this sense, research becomes inseparable from educational practice in terms of its enactment. This must be knowledge that is generated from the experience of teachers and their educational/research partners. It involves participants in the production of environmental education knowledge and its utilisation at the same time. In this sense, I do think that Suzanne gained a clearer view of her environmental education practice, and the notion of education for sustainability, which was operationalised within her environment-related educational practice. Not surprisingly, perhaps, we did think that there were inconsistencies and limitations in what we had achieved. Such a recognition need not eliminate all claims to change (see chapters 6 and 7).

But perhaps these intangibles remained so because gender was not brought into our discussions and analysis sufficiently in terms of how this variable shapes the research process. What about the male who researches the female? I was certainly sensitive to this, but perhaps in my concern with the difficulties and 'mis-steps' of doing collaborative research, I focused more on *my* position as researcher and writer, as 'representative' of or implicated in particular forms of knowledge and particular kinds of institutions, than

on Suzanne and the issue of gender within the research process. I understand now that the challenge of committed research is not only to *recognise* the socially constructed nature of diverse identities and knowledges (on the part of both the researcher and his/her participants), but also to *work* with them.

My gains

It can be argued that writing from a privileged position as a researcher about the lives of others serves to fuel my own identity as a 'committed' analytic worker within an academic world where territories have to be created and defended as part of the successful career trajectory. All that I do know is that:

1. Portrayal/disclosure [of Suzanne] was a central purpose of the research; that the life of the [other] actor involved in the research would not be glossed over as a committed researcher 'raced' to develop his own theorising
2. I still can't with confidence [more] fully articulate the reasons for Suzanne's involvement
3. Out of a formidable practical constraint I felt the need to offer something else
4. I gained a great deal from working with Suzanne in the unfair trade between us and for that I am grateful.

Clearly the notion of reciprocity/mutuality remains problematic. I have tried to emphasise how for me the central feature of this collaborative endeavour revolved around issues of processes, procedures and outcomes. As Andrew Sparkes (1998) states:

Reciprocal relationships characterised by 'fair trade' are not static but dynamic and vibrant, they ebb and flow over time in their mutual giving and receiving. What this giving and receiving is, when it happens, who gives and who receives, on what terms, and under what circumstances, can only be negotiated and renegotiated by those involved

as part of an ongoing commitment to a trusting, collaborative and equitable engagement that acknowledges and celebrates both difference and similarity along the way.

(p. 80)

exit/ending

Closure was certainly an aspect of collaboration that I had not given much thought to. My initial concern was simply in terms of length of time for the inquiry and a start and finish date, which was very much mapped into the end of my research studentship. There is no end as such, but there are no more visits, no more discussions, though there seems to be a lot of unfinished business about. We stopped meeting in July 1996 and I started a new job at the University of Plymouth in September. Continued communication was by the occasional letter and Christmas card. I have continued to listen to the network for news. Nothing much to tell – other than Suzanne did retire and took up the opportunity of environmental education projects at a local school.

reflexivity and situating knowledges

I think it is fair to say that the need to be reflexive has been most thoroughly explicated by feminist educationalists and feminist geographers. In their extensiveness, they implicitly offer rather different forms

of reflexivity that have rather different effects. Reflexivity in general is advocated by these researchers/writers as a strategy for questioning the researcher's practice of knowledge production and for marking educational knowledges as situated; that is as a means of avoiding the false neutrality and universality of so much academic knowledge. Thus understood, 'situating' is a crucial goal for all committed researchers. Yet at the same time as they [and I] defend reflexivity, many analytic workers acknowledge the difficulty of actually doing it.

The methods used in this research project were chosen because I was interested in the situated knowledge(s) of the teacher(s) I worked with. I understood their knowledge as situated, as I understood mine to be. I knew that I should situate myself and my interpretations of the research process and Suzanne's environment-related educational practice by reflexively examining my positionality.

I found this difficult to do. In a sense, I think I expected too much of reflexivity, even though in chapter 3 I wrote: 'in examining the situatedness of our own accounts of the world appeals to reflexivity must always assume the likelihood that positionality is *not* fully transparent for the authorial subject. We should be aware of our own rhetorical strategies because of the tautological notion that self-knowledge is good' (p. 86). The difficulties have prompted me to consider the criteria for success. I want to concentrate on some of the anxieties and ambivalences that surround reflexivity, positionality and situated, partial or perspectival knowledges. In particular, I want to focus on the complexity, uncertainty and incompleteness that is pervasive in many discussions of reflexivity as a strategy for marking educational knowledges as situated. This is based on Gillian Rose's (1997) critique of transparent reflexivity.

The need to situate knowledge is based on the argument that the sort of knowledge made depends on who its makers are. In order to elaborate on this idea, many feminist geographers and educational feminists often cite the work of Donna Haraway (1991) and Sandra Harding (1991), as I have done. Haraway and Harding are taken to arguing that all knowledge is marked by its origins, and to insist that to deny this marking is to make false claims to universally applicable knowledge which subjugate other knowledges and their producers. Feminists of many kinds who have elaborated their own role in the complex relations of power by exploring their 'position' frequently ascribe the politics of knowledge production to a geography of 'positionality'. Facets of the self such as institutional privilege, as well as aspects of social identity are articulated as 'positions' in a multidimensional geography of power relations. According to Haraway (1991) 'positioning is... the key practice grounding knowledge' (p. 193) because 'position' indicates the kind of power that enabled a certain kind of knowledge. Knowledge thus positioned, or situated, can no longer claim universality. Instead, both Haraway and Harding prefer knowledges that are limited, specific and partial.

Feminist educationalists and feminist geographers are acutely sensitive to the intersection of power with academic knowledge, and many have marked on their own privileged relation to the people/subjects they have studied. This privilege is understood as entailing greater access both to material resources and to the

power inherent in the production of knowledges about others. In Linda McDowell's (1992a and b) research, this privilege involves material inequalities, perceived as a difference of opportunities in terms of such things as education and professional status. But it is the interpretive act that is the key site of academic power; 'except in rare cases, the researcher holds a privileged position – by deciding what questions to ask, directing the flow of discourse, interpreting interview and observational material, and deciding where and in what form it should be presented' (McDowell, 1992b: 437). The analysis of academic or analytic power has been summarised by Linda McDowell (*ibid.*) in her comment that 'there are real dangers that are inherent in our position within the powerful institutions of knowledge production (p. 403).

In its use of terms like 'position' and 'situated' Haraway's and Harding's analysis is spatialised (place specific) and temporalised (time dependent). They also develop their understanding of situated knowledge by using visual metaphors. For example, Haraway characterises oppressive knowledge's that present themselves as universal, as knowledges that claim to see everything from nowhere. In contrast to the god-trick of claiming to see the whole world while remaining distanced from it, committed knowledges work from their situatedness to produce partial perspectives on the world. They see the world from specific locations, embodied and particular, and never innocent, knowledge as sight but also cite and site. 'The imperative to situate the production of knowledge is being formulated through a rhetoric of both space and vision' (Rose, 1997: 308). This particular description of reflexivity, then, is formulated in terms of visibility and a particular spatiality. This reflexivity looks both 'inward' to the identity of the researcher, and 'outward' to his/her relation to his/her research and what is commonly described as the 'wider world'.

John Smyth and Geoffrey Shacklock (1998) in assembling a collection of articles that are concerned with 'being reflexive about critical educational and social research' (p. 1) summarise this double reflexive gaze and its spatial division between 'inside' and 'outside'. They say, 'reflexivity in research is built on an acknowledgement of the ideological and historical power dominant forms of inquiry exert over the researcher and researched. Self-reflection upon the constraining conditions is the key to the empowerment 'capacities' of research and the fulfilment of its agenda' (p. 6). They go on to say, 'we like Ruby's (1980) description of reflexivity as the conscious revelation of the role of the beliefs and values held by the researcher in the selection of a research methodology for knowledge generation and its production as a research account'. Being reflexive, therefore, is to acknowledge that 'we are always on the corner somewhere (Richardson, 1992: 104) and that there are no privileged views on getting at the truth in the generation of research problems, processes and accounts because these things are, like the researcher, socially situated (p. 7). Smyth and Shacklock's emphasis on the self-consciousness of inward reflexivity is echoed in numerous discussions of reflexive positionality. This emphasis on the conscious analysis of situatedness suggests that the researcher's self is understood as transparently visible to analysis, since apparently according to Smyth and Shacklock (1998: 7), quoting Ruby:

Being reflexive means that the producer deliberately, intentionally reveals to his (sic) audience the underlying epistemological assumptions which caused him (sic) to

formulate a set of questions in a particular way, to seek answers to those questions in a particular way, and finally to present his (sic) findings in a particular way.

(Ruby, 1980: 157)

This is 'part of the 'contract' for critically framed research – an acceptance of the historically embedded roles of the researcher, research methodology and research account' (Smyth and Shacklock (1998: 7). The researcher-self that Smyth and Shacklock give themselves [and their readers] to reflect on, then, seems at some level at least, to be a transparently knowable agent whose motivations can be fully known.

This transparent self then looks outward, to understand its place in the world, to chart its position in the arenas of knowledge production, to see its own place in the relations of power. This is the other part of the 'contract' for critically framed research – 'the disclosure of the interests, subjectivity, and non-neutral nature of the relations between producer, process, and product which exist in any research (p. 7). Once again, this [outward] task is rendered as gaze through a complex but knowable space. These demands to understand reflexively the full context of a research project are vast, and in the end – I think impossible.

However, two tactics are commonly used to examine the terrain of power in which research takes place, and to turn the extraordinary complex power relations into a visible and clearly ordered space that can be analysed by the researcher: power becomes seen as a sort of landscape. The first tactic is to understand power relations through the organising device of scale, that is connect what is understood as the microlevel of everyday experience and relations to the macrolevel of political-economic and patriarchal power relations. Nast (1994) suggests that [feminist] researchers can understand 'historical and material realities [that] are beyond our personal social reach', which means reflexively linking 'larger scale political objectives to smaller-scale methodological strategies. It is common to structure the complexities of power by dividing it into the macroscale and the microscale. Geographical scale is used to bring analytical order to everyday complexity.

The second tactic to survey the complexity of power is to use a distributional model of power. Typically, the concern is with an unequal distribution of power which induces for researchers a struggle to distribute power more evenly. *Participation In Human Inquiry* by Peter Reason (1994) illustrates this idea well. In the final chapter, Reflections on Participation in Human Inquiry, Reason reviews a number of examples of participatory research, and states of one: 'Annette, as the co-ordinator of the project, aims to exercise no more power than is needed to establish the project – allowing power to devolve to group members as quickly as she is able (p. 193). He goes on to say, 'Annette's willingness to share power continues throughout the project...The concern for power sharing is mirrored by a concern for creating and maintaining collaborative relationships among group members' (p. 193). And finally 'this example shows how the co-operative inquiry method can truly democratise research' (p. 194).

In a second example of a participatory research project, Reason quotes the researchers directly [a personal communication]:

This of course raises the extremely interesting question of power and where it lies. We do not think of ourselves as 'benign authoritarian leaders'. We do not think of ourselves as leaders at all, but as facilitators. Any authority which we have derives from a background of experience with research, just as others concerned possess authority derived from their, equally important, realms of experience. We hope that we are benign, but then so is everyone else: the ethos of partnership research is mutual respect for what each person concerned can bring to the project. We would like it noted that the power over the focus of the work, and the research purposes, 'derives from people in the organisation. Our role in formulating purposes consists in facilitating their articulation.

(Archer and Whitaker, 1994 in Reason, 1994: 1997-8)

This tactic makes power into a question of distribution across social terrain [context], and potentially keeps power distinct from the researcher. Thus, as the two quotes suggest, although the researcher holds power, it can be given away; power remains something separate from the researcher. The researcher is positioned in power, rather than constituted by it; power becomes a 'context', which the researcher can survey somewhat at a 'distance', with some level of 'detachment' in order to admit to the power we bring to bear as authors of research projects. For some researchers, then, scale and distribution are used to produce a landscape of power that is visible and knowable to the analyst. Within the research project I think at times I unwittingly used the metaphors of landscape and distribution, seemingly more preoccupied with trying to redistribute power - than with the way that difference and power are *constituted* within the research process, and of tracing its emergence and effects. I critique this below.

This transparently visible and knowable landscape, external to the researcher and spatially organised through scale and distribution, is a product of a particular kind of reflexivity, what Gillian Rose has called 'transparent reflexivity' (1997: 311). 'It depends on certain notions of agency (as conscious) and power (as context); and assumes that both are knowable' (Rose, 1997: 311). As a discourse it produces educationalists who claim to know how power works, but who are also themselves powerful, able to see and know both themselves and the world in which they live.

These analytical claims are little different from the 'god-trick' Donna Haraway and many feminist educationalists have critiqued so thoroughly. Feminist and post-prefixed educationalists have certainly situated their analytical gaze, and are now staring hard from locations in the material histories of inequality. But this positioning is still producing some very thorough [all encompassing of both the self and context] demands for knowledge. The knowledge demanded by transparent reflexivity is massive. As Gillian Rose (1997) states: 'indeed the answers are so massive; the questions are so presumptuous about the reflective, analytical power of the researcher, that I want to say that they should be simply unanswerable: we should not imagine we can answer them' (p. 311). As she suggests, otherwise, 'we may be performing nothing more than a goddess-trick uncomfortably similar to the god-trick...though I want to suggest that, in any case, like the god-trick, the goddess-trick is an illusion' (p. 311). Rose also suggests that many feminist researchers acknowledge this even as, for political reasons, they advocate it (p. 311).

The point being made is that in recognising the particularity of any one research project's context, we also need to recognise the impossibility of such a quest to know fully both self and context. Of course, Gillian Rose is not the only one to suggest that the search for positionality through transparent reflexivity is bound to fail. The second point being made is that it is important to emphasise this first point. This is because it seems to me that in arguing for the impossibility of a reflexive quest to know fully both self and context, this generates a concern to theorise 'situatedness' more carefully. However, this argument seems to retain the conviction, in principle at least, that with more personal and collective reflection and theorisation, transparent reflexivity can adequately situate knowledge. I am less and less convinced that this is the case.

I mention all of this because, as stated above, I tended to understand difference within the research project in terms of a landscape of power and trying to redistribute or balance out power within the relationship between Suzanne and myself. I would now describe this as problematic – based on a contradiction that Rose has brought more fully into significance for me. The contradiction is this. 'Reflecting on their respective positions, a researcher situates both herself and her research subjects in the same landscape of power, which is the context of the research project. However, the researched must be placed in a different position from the researcher since they are separate and different from her' (p. 312). That is *differences* between researcher and researched are understood as *distances* in this landscape of power. This is well illustrated in my above discussion of facilitation, initiation, negotiation ownership, informed consent, and participation, 'insider' and 'outsider'. While I understood that power and ownership cannot be given (see page 145) at the same time my understanding of power as relational or constitutive (Foucault, 1980) was indeed under theorised. While the researcher and the researched perhaps *moved* around this landscape of power somewhat, I still understood difference as distributional, as distance. This distance is, of course, the effect of the material and the discursive/analytic power of the researcher. And as Rose suggests 'it is this understanding of distance that produces the contradiction, for distance is also seen as epitomising that disembodied, gods eye-view from nowhere that such positioning was meant to refuse' (p. 312-3). Claims to objective truth that are substantiated by the knower's distance from the known must be called into question on the grounds that they replicate and reinforce a positivist scientific rationality – that I argued strongly against in chapter 3; and as Rose argues, 'the gendered construction of identity and power' (p. 313).

Such a critique compels the researcher to attempt to occupy the same space as the researched. But, I would argue, like Rose, that this is an impossible position, because I am not the same as my research subjects. Rose argues 'thus in this reflexive landscape of power, the relationship between researcher and researched can only be understood in one of two ways: either as a relationship of difference, articulated through an objectifying distance, or as a relationship of sameness, understood as the researcher and the researched being in the same position' (p. 313). The contradiction Rose suggests is that 'the latter is impossible while the former is unacceptable' (p. 313). I would argue that both are impossible - though we arrive at the same conclusion - as Rose claims 'situating knowledge through transparent reflexivity thus gives no space to understanding across difference' (p. 313). This is an ironic 'position' for a post-prefixed educationalist to

find himself in, since the point of situating knowledges is precisely to forge committed, situated understandings by thinking through difference and similarity.

But through this contradiction other formations of the researcher-self and the researcher-researched relations come into view. This is what I now want to discuss. As Rose (1997: 313) suggests possibilities for a more connective or relational form of knowledge and social life are being cited/sited/sighted by feminist geographers and others. These formations take me back to the notion of 'betweenness' (Firth, 1995) that I was using in an attempt to engage with both 'modern' and 'postmodern' discourses. I described my analytical position as 'between':

The modernist-postmodernist debates in the social sciences have provided the impetus for important critiques of certain excesses of modernist theorising and have increased sensitivity to time and place. However, the debates seem to be dominated by a construction of modernism and postmodernism as unified, monolithic essences situated in absolute opposition to each other...this paper is an attempt to find some position of 'betweenness' from which to engage with both modernist and postmodernist discourses.

(p. 51)

In the same way some feminist geographers describe their analytical position as 'between': between the 'field' and the 'not-field', between theory and practice – but also between researcher and researched. In their exploration of the relations among these, while *between* does reinstate differences as distance, they nonetheless utilise a sense of 'betweenness' which also problematises that distance. The difficulty in surveying the researcher-researched relationship as a landscape of power thus generates other ways of articulating the situatedness of researched knowledge. In this discussion of 'betweenness, for example, it' produces a 'spatiality of displacement' (Katz, 1995). In this way, the [feminist, post-prefixed] research task becomes less one of mapping difference [concerned with the distribution of power], assuming a visible landscape of power with relations between positions ones of distance between distinctly separate actants – and more one of asking how difference is *constituted*, of tracing its emergence and effects during the research process itself.

Even when thinking of the researcher as distinctly different from the researched then, some feminists have dis-placed the distance of difference and its transparency. Rose argues that this displacement is more marked in moments when the connective or *relational* character of identity is emphasised. Then, positionality is not understood in terms of a conscious agent or actant who encounters their context, including other agents or actants, through an already constituted landscape of power surrounding them. Instead, it is implied that the identity [and knowledge] to be situated does not exist in isolation but only through mutually constitutive social relations – with other people or other [nonhuman] actants, and it is the implications of this relational understanding of positionality that makes the vision of a transparently knowable self and world impossible. Identity and knowledge are based on *difference* from others but not *separation* from others. This relational conception of social life that I want to take up here emphasises positionality and *interaction* amongst the disparate theoretical efforts now being used to disrupt the binary terms in which the question of situating knowledges [and the question of nature] has been posed. In this

relational argument, we depend for our sense of self precisely on an otherness we can never fully know. In this argument, then, 'the self becomes less a coherent agent and more a decentred site of differences' (Gillian Rose, 1997: 314). Julie-Kathy Gibson-Graham (1994) uses these arguments when she comments on her resistance to the assumption that she is a 'centred and knowing subject who is present to myself and can be spoken for. Un-centred, un-certain, not entirely present, not fully representable: this is not a self that can be revealed by a process of self-reflection' (p. 206). Responding to the difficulties of this uncertainty Gibson-Graham then states: 'stuffed if I know'. These uncertainties can be described as the failures of transparent reflexivity. But they also begin to suggest other ways of understanding the relationship between researcher and researched and of situating the knowledge of the researcher [including culture and nature, see chapter 8].

I am arguing that doing research is a messy and uncertain business. Researchers are entangled in the research process in all sorts of ways, and the demand to situate knowledge is a demand to recognise that messiness. Transparent reflexivity assumes that messiness can be fully understood. The above arguments though, suggest that such messiness is beyond the kind of understanding invited by a sort of reflexivity that assumes a transparently knowable self separate from its transparently knowable context. The failure of this transparent reflexivity does not indicate the failure of the project to situate knowledge reflexively, however. What it does indicate is the need to think beyond the polarities of fusion [trying to make the same] or distance offered by transparent reflexivity, and to consider the possibilities of other sorts of reflexive research practice. While transparent reflexivity may have collapsed under the strain of feminist and post-prefixed critique, the situatedness of the researcher can be articulated through other ways of seeing and spatialising knowledge.

One such situating tactic that is now more common in the literature is the insistence on theorising difference and connection/interaction rather than difference and separation. For Donna Haraway these 'webbed connections' (1991: 191) mean working up new figurations of the subject, hybrid figurations like Haraway's 'cyborg', which can articulate new relations of experience of otherness and self. These are spaces of hybridity, collectivity and corporeality (Whatmore, 1999: 27) which seek to implode the object/subject, inside/outside and realist/representational binaries that underlie transparent reflexivity and reconfigure the purified spaces of educational research.

The relational conception of research and social life that I want to outline here is based on a 'modest' (John Law, 1994; Nigel Thrift, 1996) ontological stance (as described in chapter 3) – an 'also' world as Valentine Cunningham describes it - that decouples the subject/object, inside/outside, realist/representational binaries and is rooted in the everyday practice or performance of *ordering*, as against some abstract order attributed to a colossal logos outside or above the social fray. At its most basic, the kind of 'hybrid' educational research practice that I am proposing and describing implies a radically different understanding of the social agency of the researcher in the senses both that agency is decentred, and that it is 'a precarious achievement' (John Law, 1994: 101) spun between social actors, that is researcher and researched, rather

than a manifestation of unitary intent. The agency of the researcher is reconfigured as a relational effect generated by networks of heterogeneous, interacting components or constituents whose activity is constituted in the networks of which they are a part (Law and Mol, 1995: 277). However, this is not to suggest that as a 'decentred self' researchers can somehow elude the dynamics of power. Indeed, in many ways this argument places the researcher even more firmly in the capillaries of power.

These are arguments that do not recognise human subjectivity as conscious agency. Instead, our identities do not pre-exist our performances of them. In this sense, no identity is secure [certain] in and of itself, it may only be made temporarily more certain [and this is not guaranteed] by being enacted. From this perspective subject/object and inside/outside [become] an active category, created by the actors themselves and not [one] already defined. Such a perspective produces quite a different approach to situating knowledge than do the notions of agency and context that structure transparent reflexivity as a situating strategy. From this perspective there is no clear landscape of social positions to be mapped by an all-seeing analyst; neither is there a conscious agent, whether researcher or researched, simply waiting to be reflected in a research project. Instead, researcher, researched and research make each other. The separation of subject/object and inward/outward reflexively demanded by transparent reflexion disappears in this view, along with its surveying gaze. Instead we look uncertainly and the fractured spaces we glimpse are also part of a fragmented self.

One of the consequences is that neither the researcher nor the researched remains unchanged through the research encounter. Both negotiate their way through it. Through our relations – conversational, textual, experiential – with research subjects – people and other actants – we make research (and gender, class, race, sexuality, nature). This notion of agency [as relational] does not preclude inequality (non-equivalence) but rather insists that power can only be understood as a relational effect. In this view, research cannot be seen as transparently reflexive, 'since there is no prior reality or unified identity to gain access to or to be created by research' (Gibson-Graham, 1994: 214). Instead research is seen as constitutive (if not completely so) both of the researcher and of the other(s) involved in the research process. In this sense, I now understand my discursive interventions as constitutive rather than reflective. This understanding suggests that we are made through our research as much as we make our own knowledge, and that this process is complex, uncertain and incomplete.

This notion of research as a process of constitutive relations depends on a very different understanding of identity and power from that underpinning discussions of transparent reflexivity. It is in large part influenced by feminist reworkings of some of Foucault's arguments and aspects of the work that goes under the label of actor (or actant) network theory (ANT) (such as Callon and Law, 1995; Latour, 1993, 1994; Law, 1994; Law and Mol, 1995; and Serres and Latour, 1995) and is beginning to make a mark on geography and education. It also reflects a strong feminist strand of work on science, technology and the body (such as Donna Haraway, 1992, 1997).

I have argued that the landscape of power produced by transparent reflexivity is not the only space through which the power of the academic to produce knowledge can be situated. There is also a much more fragmented space, webbed across gaps in understandings, saturated with power, but also paradoxically with uncertainty. Seen from this perspective, the research process is fraught with difficulties and it demands vigilance, a careful consideration of the research process, another kind of reflexivity, in fact – but one which can acknowledge that it may not be adequate since we cannot 'fix' the world conceptually.

Where does this leave the project of situating knowledges? As Rose (1997) says like all the other analytic workers 'I want to work towards a critical politics of power/knowledge production. Like them, I think that power and knowledge are inextricably linked' (p. 318). Like them, I am therefore concerned about the effects of my own work. And like them, I think the aim of situating academic knowledge, to produce non-overgeneralising knowledges that can learn from other kinds of knowledges, is still the crucial goal.

I have suggested that the uncertainties of reflexive knowledge are precisely what transparent kinds of reflexivity cannot articulate; assuming that self and context are, even if in principle only, transparently understandable seems to me to be demanding a certainty for analytic work that is as insidious as the universalising certainty that so many feminist and other post-prefixed analytic workers have critiqued and rejected. We have to accept and work with uncertainty in all its messiness. I have tried to argue that in different kinds of uncertainty lie possibilities for other strategies for situating knowledges and for other kinds of reflexivity. And in saying this I have tried to keep the political aim of situating knowledge in mind: to produce non generalising knowledges that can learn form other knowledges. As many other researchers would argue, transparent reflexivity does not contribute towards this aim, because of its particular understanding of agency and power. This line of argument suggests a much greater decentering of academic accounts than has hitherto been accepted. If we live in joint action with others, then it is clear that our discourses cannot be privileged.

This brings me to another reason for this discussion – other tactics for situating knowledge as partial. I have already mentioned one of these situating tactics, the notion of 'betweenness' and the processes of connection. I would have to say here that the processes of connection that happened during the research process and constituted both researcher and researched in a relation on which the research depended, remain under specified in this text. I think from time to time I have hinted at them in this chapter, but as stated above, throughout the research project I seemed more preoccupied with my own 'privileged' position and the spatial metaphor of distribution in addressing difference and power.

Another useful tactic suggested by Smith (1996) is acknowledging the gaps in meaning opened up by the recognition of the diverse knowledges addressed by any research project. Again, I only now recognise the significance of what I think Smith is saying. When I set the research project up, I wanted Suzanne, Francis and Hazel to talk to me about the meanings of their perspectives, approaches and experiences of teaching environmental education and of their understanding of their involvement in the research, so that I could

come to understand the relationship between their thoughts and their actions. This is why in the research project I focused on methods of inquiry which recognise the spontaneity, complexity, ambiguity and uncertainty of human experience. Yet very rarely, I think, did they talk to me about what a particular experience or way of doing something meant, in terms of environmental education or the research process. Indeed, they politely deflected any request to talk about 'doing research' at all. Instead, they talked of practice, of children, of the school – 'of what they did' - and all for good reasons. They also talked about themselves in similar ways. In writing about their [Suzanne's] work, I have tried to circle round that refusal of interpretation, tried to acknowledge it and to present it openly, but without being critical of it [there is no reason to be] or without writing it out. My way of understanding these 'refusals' now is to see them as 'gaps in my own interpretive project that acknowledge the political importance of the gaps in theirs. I'm not sure I succeeded, and I don't think I can or should be sure' (Rose, 1997: 318).

We cannot know everything, any more than we can know fully what is important to others. Nor can we survey power as if we can fully understand, control or redistribute it. What we may be able to do is something more modest [and potentially more radical]: to inscribe into our research practices some of the uncertainties – absences, incompleteness, fallibilities – while recognising that the significance of this does not lie entirely in our own hands; and that these need to be explored, not as problems but as spaces of conceptual and indeed political opportunities and negotiations. 'This is an argument which understands the imperative to situate less in terms of surveying positions in a landscape of power and more in terms of seeing a view of power as punctured by gaps precariously bridged. The authority of academic knowledge is put into question not by self-conscious positioning but by gaps that give space to, and are affected by, other knowledges' (Rose, 1997: 315).

reflexivity and social commitment

The problematic relation between reflexivity and commitment (see chapter 3) has been perhaps most thoroughly and trenchantly explored in the literature on feminist theory and methodology in the social sciences [those aspects I am aware of, have read and made meaning from]. Framing research in terms of social commitment also provides us with a means of overcoming the endless debates regarding subjectivity and objectivity. Following Haraway (1991) and Harding (1992), there is a difference between social commitment and bias. Bias involves unacknowledged distortion. Social commitment means that you are seeking knowledge for a purpose and that you are self-conscious about it. This purpose requires that you want to know 'reality' with as little distortion as possible.

The notion of social commitment seems to me an especially rich way of expanding the question of reflexivity in educational research. Reflexivity has often been applied to the analysis and textualisation of research data, as well as the formulation of research methodologies. Less often has reflexivity been invoked to consider the broader connection between fieldwork, its specific purpose, self-knowledge, textual presentation, and the gamut of social relations involved in qualitative research. While reflexive research is a practice which embodies a critique of its own situatedness (Usher et al, 1997: 219) the emphasis on *social*

commitment rather than a primarily personal commitment to the integrity of the data or analysis highlights our inescapable imbrication in multiple social networks, and multiple relations of power. It situates the problematic of reflexive research more squarely in the often contradictory field of competing interests and social arrangements, and it reminds us that commitment has a political as well as an ethical dimension.

Of course writing about the self can become an end in itself. It can also become as Griffiths (1998) argues 'an exercise in self justification, drawing on the Western autobiographical tradition of writing the self as hero - even if she is sometimes a tragic hero' (p. 143). I do agree with Daphne Patai (1994) who argues that this is a problem:

It cannot be coincidental that at the very time such extreme personalisation of everything is occurring, academics have reached new heights in their pretence that the world's ills are set right by mere acknowledgement of one's own position.

(p. 67)

The current fetish of questioning oneself and one's standpoint until they yield neatly to the categories of our theorising cannot overcome the messiness of reality. We do not escape from the consequences of our positions by talking about them endlessly.

(p. 70)

However, I disagree with her suggested solution of leaving such self-analysis out of analytic work altogether. We have to work with the messiness of reality, with the uncertainty of knowing. I would argue that reflexivity demands an engagement with biography as *part* of an ongoing engagement with positionality, identity, difference and relationality.

Political and ethical dimensions of social commitment in research are often displaced into the textual realm (Fine, 1992). Elspeth Probyn (1993, quoted in Levinson, 1998: 103) makes a very similar point about the excessive 'discursivity' of recent ethnographic writing. The problem with such writing for Probyn is it defines reflexivity as a heightened self-consciousness about strategies for textual representation of the 'other.' She calls for greater attention to the gendered 'ontological self' engaging in material fieldwork. This can be extended further to a closer analysis of the mutual entanglements of 'self' and 'other' in the negotiation of social commitments (Levinson, *ibid.*). In this sense, while reflexivity can be understood as 'discourse about experience' (Gergen, 1994: 71), the focus is external, in which basic terms and objects are forged in a manifold of actions and interactions. In this way, committed researchers are less likely to define and enact their 'social commitments' through abstract ideals of 'democracy', 'social justice' and 'emancipation' rather than concrete persons or social groups.

Increasingly research which fails to manifest a commitment to immediate and local transformations, or which fails to enlist research participants as 'full collaborators' in defining and executing the research project is now seen as suspect and condemned by many committed researchers. This discussion raises the question: what is it we actually mean by 'social commitment'. 'I think we must be careful not to condemn research which subordinates the goal of local change to the dissemination of its broader conclusions. After all how can we adjudicate an analytic workers commitment to a local research community against her

commitment to the broader human community? (Levinson, 1998: 89) This critique is rather presumptuous in what it purports to know about the eventual benefits of research. There is a double danger here of both creating some non-existent consensus and of reinforcing some non-existent community of right-minded academics, all of whom are presumably committed to change in the local context.

Again, if I have sounded a defensive or cautionary note here, it is because as Levinson argues, it seems to me critical to specify the many different kinds and levels of 'commitment' a more broadly conceived notion of committed research might entail. The commitment to collaboration and change in the local context of research is indeed an admirable one, if it is carried out in good faith and with sufficient attention to the contradictions of power within social practices and technologies. Yet such research does not guarantee success, nor does it exhaust the meanings or possibilities of committed research.

Further, McLaren (1994) suggests that 'the 'hierarchically structured' context of schools may make participatory research and thoroughgoing collaboration nearly impossible (p. 327). The impact that it makes will perhaps, invariably, also escape the control of the academic, however self-critical and self-reflexive he or she may be. I do believe strongly, however, that even in an era when so much attention has been focused on questions of power and social identity, research can still provide extremely trenchant and illuminating *descriptions* of educational processes. Such descriptions themselves can play a significant role in rupturing official or 'common-sense' views of what happens in schools.

In the final analysis, how have the practices of reflexivity and social commitment been articulated in my research? I have tried to show that being reflexive, for me, has meant a more or less constant monitoring of the varying kinds and levels of social commitment made possible, or impossible, by the shifting contexts of research. In my case, such contexts have included the formulation of a research proposal and selection of a research site, the main period of conducting the fieldwork itself with others, the publications I wrote at the time and the text that I am writing now. Being aware of my commitments and limitations as I worked with others in an educational setting does not prohibit me [or my readers] from envisioning a future project which might incorporate a stronger action component. Ultimately, I would hope my experience points to an expanded conception of reflexivity in committed research, an-other mediation on the multiple frames for producing knowledge and enacting social commitment.

The limitations of the research are also fairly obvious. For example, the lack of engagement with the views of the children [in Suzanne's classes] in the final account perhaps mitigates against its committed intentions. My interest in the practice of Suzanne as an environmental educator and in our collaborative work ended up weighing against the children. The children were not ignored, I spent considerable time working and in conversation with them during lessons. I also involved them in a series of small group discussions [during breaks and lunch times] concerned with learning and teaching with respect to environmental education. However, this work remains incomplete and requires further development. Constraints of time and opportunity involved a constant scaling down of the comprehensiveness of the

research and its committed integrity. In the end I had to focus on two aspects, the environment-related educational practices of Suzanne and collaboration through research. In retrospect, this perpetuated a traditional hierarchising of respondents which a committed research project such as this perhaps should have been concerned to prevent.

Race and gender relations was absent as a serious part of the analysis. I did not introduce race and gender as a starting category for discussion in the interviews or more informal conversations. Neither Suzanne, nor Francis and Hazel ever mentioned race or gender as relevant to the issues under consideration. There was, in short, a culture of silence about the various ways in which race and gender were implicated in the lives of schools more generally, and environmental education in particular. It demonstrates, once again, how principles of integrity articulated at a formal level can be compromised in the politics and practice of actual research.

case study data: methods of production and analysis

As stated earlier, my approach to research and the methods I have used have drawn on readings of feminist and post-prefixed discourses of research. Qualitative methods of social/educational research have often been advocated by feminist and post-prefixed researchers. In the early stages of feminist research an orthodoxy developed, which was at the time extremely useful, that feminist researchers should employ qualitative rather than quantitative approaches, particularly the in-depth face to face interview. As Fine (1992) insists, quantitative methods, which are:

context stripping, unconscious of [androcentric] biases, and which rely on sexist...gender stereotypes are not suited for research on how women (and men!) in today's society come into being, come into holding the views they hold...such a process cannot be recognised, understood and worded by simply compiling data and analysing them.

(p. 93)

Although the use of qualitative methods almost became a new orthodoxy for feminist researchers, feminists have increasingly taken issue with this, putting forward a view instead that the method adopted should be the one most appropriate to the specific set of research questions and to the overall research context (Fine, 1992). Gore (1997) for example have pointed to the way in which quantitative research can be an effective tool in influencing policy makers to adopt policies favourable to women. The political potential of such work is extremely important. Discriminating against racial, gender or other groups can be indicated very powerfully as can damage to the environment [within a prevailing orthodoxy that favours the use of statistical measurements both within policy formation and as a way to communicate information and policy effectiveness within the public domain] by presenting statistics. Some are critical of the polarisation of quantitative and qualitative methods, and advocate the use of multiple methods (Fine, 1992)³

However, I return to the essential point made by Ladwig and Gore and consider how I pursued the research agendas using a variety of specific methods. It can be argued that within committed research involving collaboration and reflexivity all statements of method are oversimplified. Here I point to the importance of

an emergent process of collaborative inquiry. But also, method is important. For the committed researcher understanding power as a relational activity widens the scope from the 'who' and the 'why' questions, to questions of 'how'. This shifts the researcher from reflexive concerns about 'who has the power?' or 'where, or in what, does power reside?' to questions which focus on the 'how' of power – the practices, and techniques by which it operates. It involves the tracking of knowledge production (webs of power) and its power effects (Griffiths, 1998: 174). Such research attempts to restructure the traditional relationship between researcher and 'subject'. Instead of a one-way impersonal process where researchers extract data from 'subjects', committed research encourages a more *interactive* and *mutually respectful* dialogical process where participants negotiate meanings at the level of question posing, data collection and analysis. It is in this sense I understand Ladwig and Gore's request for a more expansive discussion of methods: as being [more] concerned with the *form* of the *interaction* between Suzanne and myself, rather than with the *ethics* [equity] of the relational activity - with the techniques and practices we use in 'socially constructing' the subject matter of our investigations with our fellow researchers/inquirers, which has received widespread consideration.

The use of on-going conversations, shared teaching, shared involvement in professional development events, keeping a research journal and Suzanne 'writing for me' are all methods that are dialogical or create a context for conversation, discussion and its recording (by tape and within a research journal). The data from these contexts was negotiated according to the usual procedures within collaboration: the interview transcripts and draft accounts were discussed with Suzanne, and these discussions offered the opportunity to review and revise the accounts and to include new accounts. These negotiated written accounts or texts are the raw material of this final version, of this text. Yet, perhaps the basis of this kind of research is not merely the verbatim transcription of what an individual says, but the actual involvement with the individual.

Although we may be inclined to think of conversation as trivial (merely 'talk', or 'chat') it is important to emphasise that conversation is the primary medium through which social interaction takes place. Talk is a feature of both formal and informal interactions. Wherever we are, we relate to one another through talk (and silence). As social scientists our raw material is often the words written in documents or accounts or spoken by respondents/participants. Even if we are 'observing' what people do, observations have to be recorded in some way, for example through field notes or pre-coded schedules.

I have used the terms 'conversation', 'discussion' and 'dialogue' interchangeably. Discourse is the common term within social research used to refer to any text or single utterance or specific speech act (such as a conversation or talk) and in a more formal way to a [more] systematic ordering of language (such as legal, medical or educational discourse). Discourse or discursive practices determine what is taken as known and how this is established. They limit the forms of the 'sayable'. The important point here is not so much what sorts of language 'count' as discourse, as how researchers can approach language as data. This point draws us to the fact that language is viewed as a social practice which actively orders and shapes people's relation

to their social world. It also points to the fact that language can take on an urgency of communication and problem solving, as well as self-reflexivity.

The central purpose of the use of these methods was the intention of developing sustained conversation between Suzanne and myself that was recorded and used to produce written accounts. Sustaining a conversation is particularly difficult if it has to be fitted into the tight schedules of the teaching day and already busy and overcrowded professional lives, as was the case with Suzanne. Having conversations/discussions stall, reverse, go down cul-de-sacs, and head off on incomprehensible tangents, is a constant threat. The research project was designed to allow the flow of conversation to continue by using a number of different conversational settings that were more or less structured/formalised. The research was thus construed in terms of conversation and texts [personal written accounts] as sites in which social meanings are created and reproduced, and social identities and practices are formed.

These methods of data construction can be argued to have a significant level of credibility, at least from the vantage point of educational practitioners, due to the embeddedness of this kind of research in the lives, experiences and aspirations of teachers and researchers. Case studies 'are the preferred strategy when 'How' and 'Why' questions are being posed. When the investigator has little control over events or when the focus is on a contemporary phenomenon within some real-life context then it is here that the case study will come into its own' (p. 322). Readers of this kind of case study research are able to resonate with the images, issues, conversations, language and meanings of what was 'going on', and the fact that the complexity, contradiction and struggle of the researchers lives spills out in recognisable ways into the account/text, rather than being method-ically removed, is particularly valuable. This is what makes such research valid – it is believable.

In considering language use in a social context, it is useful to highlight two central themes that are commonly highlighted by discourse or textual analysts, which I will use to structure my consideration of methods here. The first of these concerns the social setting or interpretive context in which the discourse is set. Discourse analysis, while stressing the importance of textual work, also aims to analyse language use in its larger social context. It therefore 'goes beyond' the text in a way that other approaches, such as conversation analysis does not. For example, the researcher may develop an argument about the power relations implied by different speaking positions, such as the gender of the speaker, or the exclusion of a conceptual space for nonhumans within social constructionism by reference 'outward' to external social relations.

When thinking about the social context in which discourses are set, the analysis of the researcher is concerned not only with the large scale (how the nonhuman impacts on the production of identity and educational practices, or gender inequalities in society), but with the small scale context of particular interactions. People modify their discourse in both form and content to suit the context in which it takes place. For the researcher this means it is necessary to be sensitive to the small-scale interpretive context of

the data, including the type of interaction, the relations between the participants, and the immediate discursive aims of the speaker. This emphasis on the dialogical form of interaction brings us back to ethics, but it also points to the fact that it is actually a resource that helps frame the text. For example, even an informal discussion with a tape recorder, even between friendly participants, is different from an unstructured conversation taking place in the classroom between the same two individuals. Even though the topics may be the same in both situations, the manner in which they are related will differ. During informal discussions/interviews (and specific writing tasks) we were engaged in an intellectual process different from other interactions. These contexts framed the interaction as 'academic work' and gave *us* [I assumed] a 'professional voice'. This was not so obvious or distinct in the ongoing conversations within the classroom. During classroom conversations Suzanne seemed much more relaxed and willing to 'open up' on all manner of topics and issues. She also showed less reluctance to change, challenge or orally correct me and participate in making decisions. It was in this context that it was easier to give away the control and direction of the research project. It was, however, also much more difficult to keep a detailed log of conversation.

My point here is to emphasise, again, that our interaction was often based in academic practices and discourses which may have the tendency to marginalise the differently structured practices of teachers and could have prevented Suzanne from having more control of the shape and direction of the research project. That is, while it could be argued that these interpretive contexts allowed Suzanne's professional voice to be heard, under the rubrics of a democratic context, collegial atmosphere and collaborative intent, at the same time they sustained a professional role for myself - a researcher who had combed through the written transcript, summarised what had been said, identified all the pertinent facts and prepared the ground for the next stage - that I did not actually want. The issue of control and who 'has' it - researcher or subject/participant/co-researcher - is a complex one. I recognise explicitly now, as I began to at the time, that however much I set it up and described it as 'collaborative' involving a co-researcher, it remained, in fact, mine more than Suzanne's.

The second theme concerns the rhetorical organisation of the discourse [the written accounts] and the function of analysis. Rhetorical approaches are concerned with the way that a speaker or writer aims to use language persuasively to produce specific outcomes and establish the authority of particular accounts. Rhetorical analysis is not only about the way accounts are put together, but is also, and perhaps more importantly, about the effects that these statements seek and their insertion into a larger rhetorical context within which certain forms of knowledge will be privileged, certain modes of argument will be persuasive, and certain speakers will be heard as authoritative.

Data was constructed in the way described above. While a considerable amount of data was constructed, this was not with the aim of 'ensuring' a representative overview or case study of Suzanne's ideas about environmental education and her practice as an environmental educator, or the practice of doing educational research. Instead, it was an attempt to maximise the richness of textual detail for analytic use.

The most important consideration in the generation of data was not the amount gathered, but its usefulness in terms of creating 'the scenes' of prolonged engagement to *vivify* interpretation/analysis rather than to 'support' or 'prove' it (Lather, 1991: 91). Further, in attempting to turn the text into a display and interaction among individuals and perspectives and presenting material rich enough to bear re-analysis in different ways can bring the reader into the analysis via a dispersive impulse which fragments univocal authority (*ibid.*).

This is not the kind of research that David Hargreaves (1996) has called for: 'which demonstrates conclusively that if teachers change their practice from x to y there will be significant and enduring improvement in teaching and learning' (p. 5). However, I would argue that the [committed] story-telling and theory seeking type of case study (Bassegy, 1999: 62) is entirely appropriate and is of professional value to practitioners. Because its principal rationale is to reproduce social action in its natural setting and also to challenge such action, it can be used to improve and evaluate existing professional practice, and to develop new theory. Hargreaves ignores the complexity of educational settings within which teachers develop their craft knowledge of curriculum and pedagogy.

It follows that discourse or textual analysis is a fluid, interpretive process and the researcher should take as broad an approach to the data as possible. That is, the process of analysis begins in a very inclusive way, selecting a number of themes and sections of data which appear relevant to the research questions. It does not lend itself to setting up hard-and-fast 'rules' of analysis. Nevertheless there are certain conventions in common use [content analysis] which include the use of key words and themes, looking for variation in the text, reading for emphasis and detail, and attending to silences. While the research questions will guide the process of selection, analysis and representation, the analysis which emerges from the data may well feed back into the way the original research questions were set up, causing a modification of the questions and to the sphere of interest.

I analysed the negotiated written accounts or texts not just for the views expressed, but in particular for how the different views are established and warranted. The aim was to examine how Suzanne's particular ideas and attitudes are shaped, reproduced and legitimised through the use of language. Such analysis is concerned with the examination of meaning, and the often complex processes through which meaning is produced. Meaning is of course contestable, and the specific representations produced are always open to alternative readings. This raises the interesting and challenging political question of what is the effect of constructing the person or the issue in a particular way? In this respect textual analysis shares with other research methods a commitment to challenging common-sense knowledge and disrupting easy assumptions about the organisation of social life (in this case educational practices) and social meanings. The method, however, does not guarantee that the researcher is secure in his/her method-ological position.

This raises an important issue about the method-ology in action, specifically about the kinds of involvement authors have in the construction of texts. First, the research proceeded, as described above,

through the creation of texts and their negotiation. A 'final' representation or portrait of Suzanne's practice was then written by the author. This raises the question of what might be an appropriate metaphor for the relationship of Suzanne's practice to the presentation, of person to portrait. How should the process of discussion and questioning, editing and selection, theorising and writing be characterised? Using the ideas of Maclure (1999: 34) suitable descriptions or metaphors of this interaction tend to be 'experiential', 'dialogue' and 'negotiation' and the more cognitive aspects of the process would be described as 'inductive' – a grounded, collaborative, and ethically justifiable representation of the subject [or construction of the person – Suzanne]. Representation or portrait then:

means something like a self-encapsulation, a theorising in which the researcher facilitates the self-expression of the other, leaving control in the hands of the subject in so far as it is possible. The researcher's task is to 'represent' the subject in a double sense: first, in the artistic meaning of the word, to make a realistic likeness; but, second, to act as a kind of agent for the subject, to 'represent' her interests and ensure that her voice is heard. Linked with this second sense of representation, accounts tend to be celebratory of the individual as person or professional – making a life, rather than taking a life. Indeed, it is tacitly agreed to be bad from to do otherwise.

(ibid.)

The accounts of Suzanne's practice within this text were produced according to the usual negotiating procedures within collaboration, as described above. So the task of representation was [at least in part] collaborative and the metaphors of 'dialogue', 'negotiation' and 'induction' are appropriate. Or are they?

Perhaps a more appropriate metaphor for the relation between subject and researcher might be that of 'struggle'. First, in the sense of the one-sided attempt by the researcher to 'shape' the raw material of the ongoing dialogue data and bring it under the arrangement of a tidy, coherent, textual structure; and second, in the sense of a rescue attempt by the subject in the subsequent discussion and negotiation. This is not to suggest that there are other, more genuinely innocent or transparent ways of writing, some 'true' account waiting to be written, but simply to draw attention to the troubling gap between language and reality, to the presence of the author, and to the kind of involvement authors [do] have in the construction of texts.

The issue of involvement or control and who 'has' it - is a complex one. There were interesting political switches in the relationship between Suzanne and myself, between researcher and subject at different points in the research process. The original classroom conversations and interviews took place under the rubrics of a democratic intent (as mentioned above), the subsequent interaction involving discussion and negotiation is one of 'struggle' and the final write up by the author using negotiated accounts and further analysis is authoritarian. As Maclure (1999) argue, these are neglected disjunctions in the politics of the research process and methods: authors conciliatory in face-to-face encounters, but implacable in the construction of texts (p.54).

Further, this discussion points to another important emphasis: the carrying out of the research itself proceeds, as perhaps has already been hinted, through the creation and use of written accounts [texts] that are themselves constructed, contextual, defeasible, inconcludable and reflexive in the realities they invoke

and address. They contain the same necessary representational problems that I faced at the final write up of the research. It would therefore be inconsistent for the researcher to claim that these process-ed accounts were themselves factual or 'true', any more than the final account. The 'interactive', 'dialogic' and 'reflexive' function of the methods brings to the fore the intersubjectivity of subjectivity, and the question of whether the self-effacing aspirations of the researcher/writer within qualitative research – the idea that the writer can and should get out of the way, textually speaking and let the subject speak for herself – is possible or appropriate. What this method-ological action does is create spaces for new dialogue and contestation, within which the researcher, like other social actors, aims to provide a persuasive account. It also makes it difficult to advance claims to internal and external validity in any traditional sense.

A qualifying point needs to be registered. I am arguing that 'validity, authenticity and recognition are textual accomplishments: that they are not 'really' methodological. This raises the question of whether methodological questions are reducible to textual ones. There are two answers. For the *reader*, texts can only be authenticated in themselves: the reader has no other resource than the persuasiveness of the text. But for the *researcher*, the problem of the interrelationship of methodology and text remains important. I 'do not seek to dismiss methodology, but rather to bring its textual properties to light; to ask what sorts of stories are implicated in a particular methodology, and what sorts of stories are suppressed or made untellable (*ibid.* p. 56).

writing: the transformation of persons into portraits

Language philosophers like Wittgenstein (1958) gave up on the logical positivist formula of a purely denotative, objective language decades before the current post-prefixed critiques of writing and representational forms. But as Foley (1998) argues, 'the notions of an authoritative, formal, objective language, die hard' (p. 111). Ashmore (1989) formulates the situation in the following way: we know that all accounts are contextual, defeasible, inconcludable and reflexive in the realities they invoke and address. But we also accept the paradox that they are routinely accepted and analysed as unproblematic.

It took a while for the initial post-prefixed critiques of social science research writing to catch on (Marcus and Cushman, 1982; Clifford and Marcus, 1986). But since 1986, Norman Denzin (1997) tells us that ethnographers [social science and educational researchers] have been writing their way out of Clifford and Marcus's *Writing Culture* (p. xvii) with books and articles seeping out of the cracks in positivistic science (Geertz, 1988; Clifford, 1988; Rosaldo, 1989; Atkinson, 1990; Richardson, 1991, 1992, 1993, 1995; Clough, 1992; 1994). 'Soon the trickles turned into a torrent of philosophical statements and personal nostrums for writing experimental ethnographies' (Foley, 1998: 110), and 'we are into a period of intense reflection, of messy texts' (Denzin, 1997: xvii). Such is the experimentation in genre, voice, narrative and interpretive style, that it is almost impossible to continue to survey this rising commentary against what Marcus and Cushman (1982) describe as a 'scientific realist' style.

Richardson (1995) invites what she calls 'writing-stories':

With the poststructural understanding that the social context affects what we write, we have an opportunity – perhaps even an ethical duty – to extend our reflexivity to the study of our writing practices. We can reflect on and share with other researchers what I think of as writing-stories, or stories about how we came to construct the particular texts we did. These might be of the verification kind, or they might be more subjective – accounts of how contexts, social interactions, critiques, review processes, friendships, academic settings, departmental politics, embodiedness, and so on have affected the construction of the text. Rather than hiding the struggle, concealing the very human labor that creates the text, writing-stories would reveal emotional, social, physical, and political bases of the labor.

(p. 191)

I recognise and to an extent have attempted to put into practice Richardson's recommendations although I would regard myself as a novice writer of such texts. What were my concerns and commitments? What have I learnt from showing [some of] the self-effacement of the author, the ideological emplotments and their various textual strategies or disguises.

The significance of the literary critique in anthropology, feminist theory and the social sciences (including education) is the argument for a reconfiguring of the relationship between Western analytic practice and the social world (however configured). Yet, as Geertz (1988) wryly observes, attempts to abandon the 'easy realism' of ethnography (and social science) have prompted a 'pervasive nervousness', 'moral hypochondria' and 'authorial self-doubt' among anthropologists, as they have done among those of other disciplines, including education. There is, however, no going back. While it does not mean that academics will 'tell the real story', it does offer new insights into the textual dimensions of social/educational inquiry and the processes that effect the textual production of research-based knowledge.

At this point, it is perhaps pertinent to articulate more clearly how the kind of relational understanding of knowledge and social life advocated above disrupts the binary construction of 'reality' and 'representation' [which I argue in chapter 8 has dogged discussion on the question of nature]. The privileging of language as a precondition and hallmark of social agency rests on and reproduces a worn-out distinction between language and the world, in which the world is treated as an external referent and language as a medium which represents 'it' in a more or less transparent manner (Callon and Law, 1995; quoted in Whatmore, 1999: 30). To admit that the relationship is much more opaque, unruly, uncertain, does not mean that there is nothing beyond the text: that nothing else matters. Instead of reality on the one hand, and a representation, on the other, relational forms of thinking recognise chains of creation, interaction and translation of varying kinds and lengths which weave sound, vision, gesture, scent [smell] through all manner of bodies, elements, instruments and artefacts – so that the distinction between present and being represented no longer exhausts, or makes sense of, the compass and possibility of social conduct (Bruno Latour, 1994). This unruliness and uncertainty, and not the revelations of transparent reflexivity, should be written into research in order to reject the god[ess]-trick. As a writing strategy it demands that differences, conflicts, tensions, interactions are explored, not as problems, but as spaces of conceptual and indeed political opportunities and negotiations.

The relational understanding of social life and knowledge that I am working towards, as may be apparent, requires no small imaginative shift, but rather a series of manoeuvres each of which disconcerts the categorical infrastructures on which the edifice of social life and analytic practice is built. My own sense of the analytic space opened up by these manoeuvres is at best tentative. Nonetheless I think they are useful beginnings for journeys out of the impoverished world of binary thinking/writing and into the 'also' world of Valentine Cunningham – which makes it possible to explore the entities, capacities, and processes conventionally preassigned to the spheres of the 'real' and the 'represented' and the 'natural' and the 'social'. These manoeuvres do not preclude the analytical possibility of still obtaining real and represented and nature and society as an outcome of specific modes of *ordering* (networking), but they do insist that 'there is no longer any reason to limit the ontological varieties that matter to two' (Bruno Latour, 1993: 79).

As I began writing the text, I found the circle of interpretive/portrayal commitments somewhat daunting, even prohibitive. There was the voice of Suzanne. How could I honour my commitment to her, doing so in a way that would recognise her distinct contributions, interests and concerns, and not pin down, tie up and package this thing called 'Suzanne's practice' as an environmental educator. I was also hoping to contribute to knowledge, debate, policy formation and transformative action in terms of environmental education in schools themselves. And there is even 'the environment'. On the other hand, I was also attempting to 'accommodate' my [unknown] thesis committee members, representatives of an intellectual discipline to whose knowledge I was contributing – which is perhaps a round about way of saying 'accommodating' myself as I am/was writing for a professional award. And not forgetting that the carrying out of these research tasks themselves proceed through the creation and use of accounts and documents that are themselves contextual, defeasible etc, and contain the same necessary paradox whose acceptance is the legitimate focus of research. These are the commitments that have shaped my writing. The theoretical and the descriptive are weaved together into an argument that demonstrates the utility of a post-prefixed worldview, where the writing is not overly autobiographical, but where there is an effort to be reflexive in other ways and to foreground how I have produced the account.

There are good reasons, therefore, for attending to the textual forms in which teachers, researchers, collaborators and their contexts are portrayed in research accounts. If we refuse to 'interrogate' these forms, we run the risk of promoting an uncritical research practice which, in seeming to describe the interactions between people and contexts as they 'really are', simply perpetuates whatever representations [of research and environmental education] happen to be circulating in the various professional cultures (research, practitioner, academic) at any given time. In the end, however, I think my solution to the problem of realist research accounts is rather conventional, and relies more on a 'new critical discourse/theory' than on highly innovative narrative practices (Foley, 1998: 122). Within this new discursive regime the scientist who objectively records reality and makes transcendent grand knowledge claims is replaced with the situated, historical and committed social critic who within the uncertainties of research, makes modest knowledge [claims] that learn from other kinds of knowledges. This is becoming a more conventional format for analytic work.

If one starts with a more performative notion of reality, i.e. a materially-discursively constructed reality, then it kind of follows that one's narrative will be more complex and performative, hence more 'valid'. Conversation and performance suggests creation and interaction not revelation. I acknowledge the material and discursive power of my analytic performance, and write/speak in an authorial Foucauldian voice throughout the text, recognising that my author-ity is incomplete, as part of a web of discursive interpretations where it may invite and be given a range of diverse meanings.

The approach is perhaps closer to what Denzin describes as writing [my way] out of Clifford and Marcus's (1986) *Writing Culture* than it is to the old scientific realist tradition, but in the end it seems that what I have written does not [will not?] abandon realist narrative practices so quickly. But this is not because I cling to 'modernist' notions of identity, language, knowledge and reality. It is because, as claimed in chapter 1, I do think it is the one special responsibility that academics have, to communicate with people and to multiply the communicative resources that people have available to them. Ultimately, all of us who are claiming to produce more reflexive texts need audience response data on how readers make sense of our texts (Back, 1998: 292). None of us know that much about how our texts work. There are several audiences for any one piece of research and they may all have very different interpretations of the research project, both from the researcher and from each other. This suggests that what an audience may do with a piece of research is unknowable. In the end, perhaps all that we can hope is that people will be able to deconstruct and critique the newer reflexive texts more easily.

This impossibility does not absolve researchers from the obligation to work in an ethical manner (Haraway, 1991). It does suggest, however, that the researcher is not the only authority on academic knowledge and its effects. Nor does it absolve the need to think of ways in which attention to the textual and rhetorical nature of our writing might be used to improve the ways in which we communicate our ideas to the people we 'work with' and others in the wider society beyond the boundaries of academia. Developing our writing may help educational researchers find new ways of intervening within public life and reaching wider audiences in a more effective way. We live in a society profuse with information (in written, electronic and digital form) and social commentary, and an apparent fetish with educational performance and measurement. We do education no service if we assume that wider society is disinterested in educational research. We need to think carefully about the products of research and how they enter the social world beyond the academy.

The concern must be to avoid reflexivity degenerating into solipsism and self-absorption, where we continually examine our own discrete and sometimes stale professional cultures. The current preoccupation in some circles for questioning oneself and one's standpoint endlessly until they yield neatly to the categories of our theorising cannot overcome the messiness of reality (Patai, 1994: 70). As Les Back (1998) argues 'it would be a disaster, in my view, if these insightful perspectives resulted in little more than a self-referential endo-professionalism, where research is reduced to endless textual deconstruction' (p. 292). As he suggests this can result in a kind of intellectual vertigo, where the level of analysis is abstracted to such a

degree that the social/educational world with which we are familiar – and which for many provided the basis for an interest in research in the first place – seems to disappear into a tangle of obfuscating jargon, anxiety and uncertainty as to how to write anything at all about social/educational life (ibid.).

I have tried to present some good reasons for why we need to write in ways that break with the old scientific realist style. To this end, I have advocated writing in a ‘hybrid voice’ or a ‘reflexive/situated realist’ narrative style that engages ordinary readers’ common sense understanding of representational practices. I have argued for a reflexive realist form that is perhaps more familiar to readers than a highly experimental, avant-garde narrative form. My main reasons for this approach, as stated above, are political. Using more familiar narrative forms should help bridge the often vast cultural gulf between academics and general public at large – a much wider audience that we need to begin to recognise.

But I do not think that relying on textual style alone is going to decrease the authority of the author. If our work – as we research it and as we write it – is not entirely in our control because it is always interpreted, possibly in a range of diverse arenas, suggesting textual strategies to control its interpretation is perhaps beside the point. This is not to suggest that a researcher should abandon all efforts to produce what (s)he hopes will be understood as situated work [for the reasons outlined above], but it is to suggest that how a research project is understood is not entirely a consequence of the relation between the researcher and the researched. To assume otherwise is, once again, to resist the proliferation of power/knowledges [and avoid the question of how we deal with uncertainty] by asserting the unassailable authority of academic analysis.

Three points:

1. Worrying over epistemology and representational issues has become another rhetorical convention to establish, not undermine, the author’s authority. Worse still, this new rhetoric still reproduces the academic high culture. The ethnographer [*researcher*] as sceptical philosopher-poet is some improvement over the ethnographer as objective scientist, but the agents of the academy are still doing most of the talking and writing (Foley, 1998:118).
2. Writing in a reflexive autobiographical⁴ voice and *ordinary language* breaks more completely with formal academic discourse style than most poststructuralists do (Foley, 1998:126; author emphasis).
3. ‘The following are James Joyce’s lessons about writing: We should not take ourselves too seriously...We need to understand that writing is inscription, an evocative act of creation and of representation...We can invent a new language, as other avant-gardes [*like Joyce*] have done. This should be done, however...with a sense of parody, knowing that any new form of writing...can always be undone’ (Denzin, 1997: 26).

summary

Given the nature of academic work, we can expect (indeed, hope) that activist research agendas will remain an important part of the academy.

(Ladwig and Gore, 1994: 236)

So with a view to my audience, why should a reader of educational and social research be interested in a small-scale study which uses reflexive methods, does not claim to be representative, and only offers one possible committed account of the issues under investigation. This is a relevant question to ask of this methodological approach to committed research. And how is writing a text to be read by other academics going to contribute to the overall political concerns that I have for nature or the environment?

As far as this methodological form of committed reflexive research is concerned, perhaps 'dialogue' and 'negotiation' are terms that have a tendency to gloss over the 'struggles' in the relationship between researcher and researched, self and identity, data and analysis, writer and written: struggles that are always 'in-process'. Reflexivity does not guarantee that the research process becomes more mutual, as a strategy to deconstruct the researcher's authority. Nor does it guarantee a 'better representation'. As many social scientists have recognised in recent years, authors, when they present or portray competing worldviews and how these views are embedded in the life experiences of the actors, ultimately control the representations of those they have worked with. In abandoning the authorial absence of realist texts within qualitative research this is not to suggest that there are other, [reflexively] more genuinely innocent or transparent ways of 'telling it like it is'. While reflexivity is not optional, it seems the issue of analytic authority is particularly problematic whether a committed researcher or not.

Committed research is the constant attempt to create ways of dealing with the complex political, intellectual, educational and personal dilemmas we confront when we seek to connect our research activities to the work lives of teachers and to larger social movements. Perhaps, as yet our capacities as researchers to get privileged access to the complex work lives of teachers is still very crude by any standards. In this sense, a political strategy for educational research for the environment and social justice is not to be found in any one methodology or in any overarching grand plan. Rather, the political strategy is one that requires each of us to continually reassess our own beliefs and values and opportunities, at the same time that we take a shrewd and critical view of the larger and complex context which gave rise to them. However, in terms of trying to abandon the 'easy realism' of research - there is no going back.

Hopefully, the research project does provide some insights into new possibilities for committed research, albeit in some limited way, to break away from traditional power relations between researcher and researched and to offer the participants in the research the opportunity to guide the process of research and even get some benefit from being involved in the research. For the reader who might be thinking of 'doing some' committed research, or for the reader who has already attempted some research, then this story along with similar stories as they get told would become part of what Richardson (1990) calls a 'collective story'. Such stories, as Richardson (1990) argues, can have transformative possibilities at the individual level in

that they challenge the limitations of available narratives by providing new narratives that, on reading them, legitimates the replanning of one's own life.

Likewise collective stories also have transformative possibilities at the socio-cultural level. The provision of theoretically framed stories has a part to play in bringing together individuals, who, for the most part, stay separated from one another. Such stories provide a different vision of schooling and pedagogy and allow readers to reflect on the tacit assumptions that guide their research practices. Such stories reveal the way ideas look in action, showing what experiences emerged when certain ideas are followed. Analysing theoretically framed stories can allow a moral investigation of the practical consequences of beliefs and theories that are otherwise decontextualised abstractions. Stories can provide powerful vicarious experiences for the reader in ways that can inform, entertain and even change.

The upshot is that collaborative forms of work may not deserve the privileged status some people, including myself, seem to want to give them. This is not to say that we should privilege refusal to collaborate either. It is to say that there may be good reasons for refusal, including the difficulty of actually doing it.

As for nature or the environment – our work was oriented at clarifying pedagogy's role in terms of the environment, from a perspective where environmental education and research are not the means to the goal of social change, but indeed processes of social change themselves. This issue is addressed in chapter 6 and 7.

Notes

1. There are many versions of the meaning of ideology. It would probably be unwise to suggest that any particular version of ideology is the 'correct' one or even the most commonly deployed one within education. The whole concept of ideology has come under scrutiny in recent years for it involves at least two central problems: the problem of scope, and the problem of truth (Barber, 2000: 62). Like Bennett (1998), my own view of ideology is that it is untenable to counterpoise the concept of ideology to truth and that all social groups have ideologies. In this sense, the only acceptable concept of ideology is one which is interchangeable with the Foucauldian notion of power/knowledge. As such, ideology (hegemony) cannot be seen as a simple tool of domination within socio-economic and political arrangements and ideology critique, the twin anti-hegemonic Germanic aspirations of emancipation and exposure. This Gramscian tradition leads to the attempt to organise generalised struggles of the subordinate against a single source of power, that is, counter-hegemonic struggles. By contrast, for Foucault, there is no single originatory. Rather, power is held to be dispersed, and conflict is specific to a 'region of culture' and the particular practices and technologies pertaining to it, including the justification and maintenance of the ascendancy of 'nature' and environmental education.
2. As Stronach and Maclure (1997) point out 'Derrida is intentionally naming a paradox: the 'space' that is opened is actually, or also, a dislocation, a denial of the spaces that insulate disciplines from one another' (p.4).
3. Morwenna Griffiths (1998) emphasises that the qualitative-quantitative distinction is a simple structure for distinguishing methodological and method issues, but that 'this simplicity is deceptive and ultimately unhelpful, because it obscures the real contours of the debates (p. 14). However, I do not wish to get into such 'qualitative'- 'quantitative' debates here, as I have not used quantitative techniques.
4. Here I use the term 'autobiographical' to refer to the Western modernist notion of autobiography, but not the linear progression of a lone individual outside history and culture. In recent years feminist writers have brought together a new style of autobiographical writing that breaks with the modernist tradition. The new style reintroduces a powerful authorial voice, but is based on a less unified, essentialist modern notion of personal history.

Never has there been a greater need for young people to be aware of the necessity to look after the environment. They are the custodians, and will be responsible for the world in which, in turn, their children will grow up. It is essential that all those with influence over the environment work together towards its conservation and improvement.

(*Curriculum Guidance 7: Environmental Education*, NCC, 1990: 1)

encouraging and helping young people to apply knowledge and skills in wise and caring actions which reflect a growing commitment to environmental values. It is, therefore, essential that schools provide pupils with opportunities for exploring their personal feelings and responses to environmental issues, and with a climate for learning which nurtures positive attitudes towards the environment and a strong sense of social and environmental responsibility.

(*Advisory Paper 17: Environmental Education*, CCW, 1990: 17)

The status of environmental education in schools has risen in recent years with increasing official recognition, both nationally and internationally; and more attention has been paid to all aspects of its theory and practice.

(Sterling 1992)

In terms of representing environmental education practice, we recognise that environmental education takes different forms in different places and that teachers in different locations have different opportunities to do environmental education.

(Robottom, 1996: 47)

We began by talking to teachers, that is, by engaging these people in conversations about their environment-related practices and the philosophy underlying these practices. They began by telling us stories.

(Hart, 1996: 34)

'Cultures' do not hold still for their portraits. Attempts to make them do so always involve simplification and exclusion, selection of a temporal focus, the construction of a particular self-other relationship, and the imposition or negotiation of a power relationship.

(Clifford, 1986: 10)

The difficulty for environmental educators seems to be that many have cast themselves as 'defenders of the faith' – defenders of the privileged status of modern science – rather than as 'understanders' (connoisseurs and critics) of the myths, narratives and rituals which constitute science in the contemporary world.

(Gough, 1993: 616)

To understand just one life, you have to swallow the world. I told you that.

(Simon Rushdie, *Midnight's Children*, 1982)

You may know a truth but if it is at all complicated you have to be an artist not to utter it as a lie.

(Iris Murdoch, 1971: 11)

introduction

Today, environmental education is a broad field. There is a considerable literature and resource of curriculum materials. There are many definitions and approaches to environmental education; nearly all stress its breadth, the importance of values and ethics, and the role of education in affecting individual and social responsibility to the environment. Traditionally, within secondary schools, established curriculum subjects have been the main vehicle for environmental education. Less commonly environmental education has featured as an individual subject in the curriculum, and more recently as a National Curriculum cross-curricular theme. Within primary schools, traditionally, environmental education has been approached

through 'nature studies' and 'social studies' (Symons, 1996: 55-56), topic work, through a whole school approach and as a National Curriculum cross-curricular theme. Commonly three principles or approaches have guided environmental education provision in England and Wales (Schools Council, 1974). They are characterised by the notions of education *about*, *in*, and *for* the environment. Embedded within these three principles or approaches are the specific aims of the learning process: the development of knowledge, skills, attitudes and behaviour. These are referred to and articulated in a variety of government, intergovernmental and national organisation documents which attempt to define the aims and content of environmental education.

Over the years the view of 'the environment' and of environmental issues has broadened to become much more wide-ranging, inclusive of local-global scales and the human, political and economic aspects of environmental concerns (Sterling, 1990). This changing view has also been echoed in environmental education, which has been undergoing a shift from a narrow transmission of knowledge and 'objective' study focus to a broader more critical concern for education *for* the environment, which has a more holistic socio-ecological focus concerned with environmental responsibility and personal and social transformation. The relation between the emergence of education for sustainability, citizenship and social participation, and change in wider society is now more strongly emphasised in the National Curriculum through the so-called 'new agenda' identified in the national curriculum review.

John Fien (1993a: 14) has stressed that the emphasis on education *for* the environment does not make it any more ideological than the other two principles/approaches to environmental education (namely, *about* and *in*). He argues that education *for* the environment inevitably has an overt agenda, an agenda which aims to engage pupils actively in the exploration and resolution of environmental issues, to foster environmental and ethical awareness, and values and actions to promote lifestyles that are compatible with the sustainable and equitable use of resources within democratic societies. Through the 1990s it has been emphasised that socially and ecologically sustainable relationships between people and nature requires an education system in which young people 'can take an active, participatory role in coming to individual and community responses to environmental and development questions' (Lambert and Balderstone, 1999: 372). But at the same time, Lambert and Balderstone (1999) go on to say 'it is most unlikely that they [pupils] can be taught at school what 'the answer' is to the question how to live more 'sustainably' (p. 372). This more socially critical form of pedagogy sees a reciprocal relationship between schools and society, in which formal education is both shaped by and responsive to the needs of society and, in turn, helps to shape the society of which it is a part.

the case for the establishment of environmental education

'The case for the establishment of environmental education within both the formal and informal education sectors in England and Wales has been argued over for the last 25 years or so (see for example National Association for Environmental Education (NAEE), 1974; Schools Council, 1974; Dept. for Education and Science (DES), 1981; Her Majesty's Inspectorate (HMI), 1989; National Curriculum Council (NCC), 1990a, b; School Curriculum and Assessment Authority (SCAA), 1996a,b)' (Scott and Reid, 1998: 213)

and DfEE/QCA, 1998). This case has been supported by a range of strategies and influenced by a number of distinctive curricular and extra-curricular traditions and initiatives. Much by way of implementation has occurred in that time. 'The speed of development of thinking and documentation relating to environmental education in the 1970s and 1980s was quite remarkable' (Palmer, 1998: 24). No other single educational area has developed as fast and with as much acceptance (Tilbury and Walford, 1996: 51). 'In my opinion the 1980s and 1990s saw no reduction in that speed' (Palmer, 1998: 24).

During this time there has been a series of attempts both to stimulate and to steer the practice of environmental education in schools by means of intermittent initiatives from central government, Local Agenda 21, LEAs, Subject Associations, the school grounds movement, and individuals within the environmental education movement itself, as well as international agencies, for example, UNESCO-UNEP (the United Nations Environment Programme), IUCN (the International Union for the Conservation of Nature and Natural Resources), the European Union, and various other inter-governmental bodies and environment and development NGOs (Non-governmental organisations, e.g. WWF(UK); FoE; Greenpeace; Oxfam; Save the Children Fund).

Over the last 25 years or so policy statements and curriculum documents were being produced in response to a perceived need to educate people about environmental issues. 'Policy development in the field of environmental education has a more overt basis at national and international level than does geographical education, and its international dimension is particularly important. Few subject areas in the schools' National Curriculum have as high an international profile as those relating to the environment. It is a field that stimulates interest and strong emotional reaction in all sectors of society' (Foskett, 1996: 224). 'Ostensibly, the aim of policy makers, or those who make decisions about educational policy, is to bring about behavioural change that will lead to an improved environment' (Walker, 1995: 121). However, there is little research evidence which identifies whether, in fact, environmental education is taught in schools; how it is taught; the constraints in implementing environmental education programmes; and the effectiveness of these programmes.

international initiatives

International initiatives in environmental education largely stem from intergovernmental conferences held in Belgrade, Tbilisi, and Moscow in 1975, 1977 and 1987. 1987 was a critical year on the international scene, marking the tenth anniversary of the Tbilisi Conference, Georgia, USSR. Tbilisi established a framework for an international consensus which without doubt has been the seminal influence on the development of environmental education policies around the globe. A number of major themes emerged from the 'Tbilisi Plus Ten' Conference, jointly organised by UNESCO and UNEP, and held in Moscow, including the vital importance of environmental education as summed up in the opening address:

In the long run, nothing significant will happen to reduce local and international threats to the environment unless widespread public awareness is aroused concerning the essential links between environmental quality and the continued satisfaction of human needs. Human action depends upon motivation, which depends upon widespread understanding.

This is why we feel it is so important that everyone becomes environmentally conscious through proper environmental education.

(UNESCO, 1987)

Thus in 1987 the principles laid down in Tbilisi a decade earlier were endorsed. Also in that year *Our Common Future* (WCED, 1987) otherwise known as the *Brundtland Report*, was published, the outcome of the deliberations on the World Commission on Environment and Development. The report presented a major statement on a 'global agenda' to reconcile environment with development, thus reinforcing and extending the core message of the *World Conservation Strategy* (IUCN/UNEP/WWF, 1980). The Reports foreword stated:

Our message is directed towards people, whose well-being is the ultimate goal of all environment and development policies. Unless we are able to translate our words into a language that can reach the minds and hearts of people young and old, we shall not be able to undertake the extensive social changes needed to correct the course of development.

(WCED, 1987)

Our Common Future defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their needs. The Report outlined a series of critical objectives for sustainable development policies and identified two key concepts that are tied to the process of sustainable management of the Earth's resources: the basic needs of humanity and the limits to development imposed by technology and social organisation and by the impacts upon environmental resources and upon the biosphere's ability to absorb the effects of human activities. The Report was optimistic in that it argued that technology and social organisation can be managed and improved to make way for a new era of economic growth.

On the international scene, probably one of the most significant publications of the early 1990s was *Caring for the Earth: A Strategy for Sustainable Living* (IUCN/UNEP/WWF, 1991). This was welcomed as a new and thoroughly revised version of the *World Conservation Strategy*. The new strategy built on much that had been learnt about the complexity of environment and development issues in the 1980s and suggested that the need for radical and co-ordinated action was now far more urgent than it had been in 1980. It outlined a new ethic for sustainable living which provides the founding principle of the suggested nine principles of a sustainable society. The notion of sustainable development, well and truly on the environmental agenda by the 1990s, permeated the text. *Caring for the Earth* provided a timely contribution to international debate about environmental education, with its focus on translating ideas and principles of sustainable living into practical actions that may influence governments and individuals alike.

Debate arising from *Our Common Future* and *Caring for the Earth* led to another conference, the Earth Summit, staged at Rio de Janeiro, Brazil in June 1992. This involved a government Summit with delegates from over 170 countries and a Global Forum, involving representatives from several hundred special interest groups and NGOs. Several important documents were signed at the Summit, representing the beginning of a long process of interpreting, responding to and implementing recommendations and agreements designed to change the future of planet Earth. The centrepiece of the Rio agreements was

Agenda 21, By endorsing Agenda 21 national governments committed themselves to a major action programme for sustainable development monitored by the UN Commission on Sustainable Development. The transition to sustainability requires people to face difficult choices and make difficult decisions.

There were implications for environmental education throughout the document, and especially in chapters 25, on Children and Youth in Sustainable Development, and Chapter 36, on Promoting Education, Public Awareness and Training. One of the key outcomes of the Conference for educators was the recommendation that environment and development education should be incorporated as an essential part of learning, within both formal and informal education sectors:

Governments should strive to update or prepare strategies at integrating environment and development as a cross-cutting issue into education at all levels within the next three years.

(Agenda 21, Chapter 36, UNCED, 1992)

A key focus in Agenda 21's chapter on education is participation and empowerment. Education for sustainability should develop people's abilities as decision-makers, and requires the democratisation of both education and society so that people can realise their common interest in sustainable futures (Huckle, 1995: 9).

These international policy statements emphasised the urgent need for world-wide environmental education and its fundamental role in the transition to sustainability. They also emphasised the importance of values education, lifestyle change and the social participation and responsibility aims of environmental education. The need for schools to guide and support young people's experiences of participation and citizenship were strongly endorsed. Indeed messages relating to education have become more powerful and elaborate as thinking about environment and development issues has progressed (Palmer, 1998: 77).

national context

Over the years there has been periodic reflection and review (1988-1990, 1994, 1999) by the UK government through its curriculum authorities about the strategic options open to them in terms of the environment and environmental education, along with a number of government reports and publications.

'The 4 year period following the introduction of the National Curriculum in England and Wales in 1990 saw schools struggling to keep with the many and varying changes which resulted from the hurried development of this centrally imposed, essentially untried and untested initiative' (Scott and Reid, 1998: 215). In the early stages of the move to the National Curriculum, and as a result of growing societal emphasis on environment and development issues and pressure from the United Nations and the European Community to promote environmental education in schools, the UK government established environmental education as one of five cross-curricular themes. The five themes (the others being health education, economic and industrial understanding, education for citizenship, careers and guidance) were to be regarded not as an appendage to be 'tacked on' to the Curriculum's core and foundation subjects, but as a central element of the curriculum as a whole, having progression and continuity like all other subject areas.

Environmental education was now seen as entitlement for every school-aged pupil. This development was supported by the government's own curriculum support agency, the National Curriculum Council (NCC), through the establishment of a broadly based working party which then issued specific advice to schools via the publication, *Curriculum Guidance 7: environmental education* (NCC, 1990). The publication drew its ideas from established practice within schools in the UK and international developments and its broad definitions and generalised aims from the work of the international bodies, in the main UNESCO and IUCN. *Curriculum Guidance 7* also adopted the three-component model of environmental education (in/about/for), and gave emphasis to achieving an education *for* the environment, without, however, endorsing the 'emancipatory' social goals which the critical tradition within environmental education gave to their interpretation of this form of environmental education (see for example Robottom, 1990; Huckle, 1991; Fien, 1993a; Firth, 1995). This centralised initiative was in marked contrast to much of the history of environmental education in schools in the UK, where local and grass-roots development and interpretation of ideas were valued and encouraged and where teacher input to the process was high (Schools Council, quoted in Scott and Reid, 1998: 215). Overall, *Curriculum Guidance 7* was seen as offering some potential but that its aims, recommendations and examples were generally weak and disappointing compared with its Welsh equivalent *Advisory Paper 17: Environmental Education* (CCW, 1990). This more strongly promotes sustainability and stewardship and supports a more critical pedagogy.

While there was some potential for environmental education/education for sustainability in English core and foundation subjects, such as science and geography, and in other cross-curricular themes, such as citizenship and education for economic and industrial understanding, the National Curriculum at the beginning of the 1990s did not provide a clear entitlement to environmental education/education for sustainability in the way that many environmental educators and the international reports suggested it should.

In the period from 1990, any initial optimism arising from the identification of environmental education as part of the National Curriculum and its status as a cross-curricular theme, was dissipated through schools' experience of the implementation process of the National Curriculum and by the marginalisation of all the cross-curricular themes. 'Despite this statement of entitlement the incorporation of the cross-curricular themes into the National Curriculum was not an easy task for teachers' (Tilbury, 1997a: 93) as Scott and Reid (1998) explain, the problem:

in part at least [was] the sheer volume of change required (Whitty *et al.*, 1994). Part of the problem was that the themes, unlike most of the 'subject curriculum', had no statutory basis, i.e. were not required to be addressed, save where issues happened to reside within statutory (subject) programmes of study, were not tested or examined, and were not subject to inspection by the government's increasingly active and influential Office for Standards in Education (OfSTED). In such circumstances, the action of schools to concentrate on what government policy determined was the priority, by which their work was bound to be judged, and what they were led to believe was what the population wanted is entirely understandable.

(p. 216)

In effect, the specific guidance for environmental education was neglected and the emphasis on environmental education in schools was lessened through schools' prioritising of the statutory part of the curriculum.

Though the National Curriculum review of 1994 ended the inclusion of environmental education as a cross-curricular theme or element of the curriculum in its own right, the revised subject Orders were seen by some as providing much greater opportunities for schools to tailor the curriculum to meet their own particular needs. The revision freed up curriculum time for use at the schools discretion, and the individual subject Orders were also much less prescriptive. 'They represented the minimum statutory framework' (Westaway and Rawling, 1996: 37). The extent to which environmental education could readily be explored through the statutory curriculum (mainly science and geography) was questioned as the content and foci of these subjects were reviewed and reduced. The curriculum revisions did place some of what had traditionally been regarded as the content of environmental education within the subjects of science and geography, and in theory then, all pupils following the National Curriculum should receive teaching in environmental education through their programmes of study, and as a result of whatever initiatives were taken by individual schools and teachers to pursue this content in cross-curricular ways. However, the reality for many schools in England and Wales was the very limited entitlement of environmental education within the National Curriculum. While there was some scope for examining issues of sustainability, as Huckle (1995: 10) argued, unless schools recognise the inter-disciplinary nature (cross-curricular) of education for sustainability and give it prominence in their aims and mission statements, there is a danger that it will become a specialist area within science and geography, studied for a very limited period by a minority of pupils, rather than an entitlement for all. Ironically, the Education Reform Act of 1988 requires schools to provide a 'broad and balanced curriculum' and to promote 'the spiritual, moral, social and cultural development of pupils' in order to prepare 'pupils for the opportunities, responsibilities and experiences of adult life'. It is difficult to imagine how this could be achieved without taking cross-curricular themes seriously and giving specific attention to environment and development issues and education for sustainability.

The government's commitment to environmental education/education for sustainability was further questioned with the publication of *Sustainable Development: the UK Strategy* (DoE, 1993). The document does not make specific reference to environmental education or education for sustainability within the National Curriculum. The Council for Environmental Education (CEE) described as 'weak and non-committal' the strategy's reference to environmental education in schools, the youth service and further and higher education. In its view, the documents failed to fulfil in any way the education commitments set out and agreed in Rio. And this was in spite of what was happening in further and higher education, where in 1993 the Toyne Report: *Environmental Responsibility: An Agenda for Further and Higher Education* recommended that every further and higher education institution should adopt and publicise a comprehensive environmental education statement, a policy and strategy for the development of environmental education and action plans for their implementation.

1994, talking about education for sustainability

1994, as described above, saw a formal review of the implementation of the National Curriculum in England and Wales (Dearing, 1994), which established with minor amendments, the government's policy towards environmental education until the establishment of Curriculum 2000. At this time the policy had two facets: (i) it required schools through the statutory part of the National Curriculum (science and geography) to teach environmental education, and after the SCAA (1996) publication *Teaching Environmental Matters through the National Curriculum*, to teach 'environmental matters'; and (ii) it encouraged schools to go beyond this statutory obligation and to establish their own distinctive environmental education/education for sustainable development policy and practice.

It was in this context that the government began renewed activity with regard to environmental education and I attended a conference: From Environmental Education to Education for Sustainability. There was greater co-operation between the education and the environment ministries, a number of publications appeared in 1995-96, and in government circles the term education for sustainable development seemed to take on significance. Of course, education for sustainable development or education for sustainability had already taken on major significance within the environmental education movement and had been promoted and theorised for a number of years (Huckle and Sterling, 1996 lists numerous examples especially in chapters 1-2 and also 4-5).

In May 1994 I had a stimulating experience of sitting in a conference room sharing thoughts and ideas about a more critically reflective approach to environmental education in which social and ethical issues are brought to the fore and confronted...[or was it]... the ways we had succeeded or failed [individually and collectively] in meeting our social and ecological commitments as educators. The occasion was a one-day seminar: From Environmental Education to Education for Sustainability. More than forty teachers, teacher educators, LEA advisors, inspectors and NGO educational representatives had gathered at Marston Farm Hotel, Marston Green, Birmingham to listen to the thoughts of Jonathan Porritt and engage in discussion. The seminar, organised by WWF UK, had several documented key aims, but on the day the emphasis was very much on:

- introducing WWF UK's *Reaching Out* professional teacher development programme on education for sustainability and receiving feedback from participants
- discussing the place of education for sustainability within the National Curriculum and the guidelines for school inspection and
- discussing practical ways in which WWF UK might support teacher trainers and advisors in shaping INSET and consultancy for education for sustainability.

The keynote address by Jonathan Porritt emphasised the interlinked nature of the challenges to the environment and to education, and set the tone and agenda for the seminar. At the heart of his address was the belief that there was little chance of protecting the 'natural world' (author emphasis) in the future

'unless minimum conditions of social equity and justice are maintained. It was not possible to promote environmental awareness in a social and political vacuum'.

Porritt argued that traditionally 'the effectiveness of the environmental movement had been due to its concern to keep the debate safe, keep it politically respectable and socially acceptable'. Environmental campaigners tended to marshal scientific facts to attack particular problems without questioning the value systems at the root of those problems. Environmental education, he suggested, followed a similar route. It tended to be fact based and did not invite personal experiences. It certainly did not question accepted notions of social justice and the global economy. The shift to education for sustainability would according to Porritt allow these issues of social justice and democratic renewal, which are so essential to protecting natural habitats, to come right up front in the educational process. He admitted this shift took education into different, less safe territory.

'Education for sustainability' concluded Porritt, 'cannot be about alleviating short-term symptoms of an increasingly dysfunctional society. It needs a longer-term leap to sustainable futures'. That, he argued, required entirely new scenarios in teaching about sustainability.

Whilst Listening to Jonathan Porritt, Peter Martin (WWF Principal Education Officer), Peter Smith (Ofsted) and John Huckle (teacher educator) the notion of 'the social commitment of the educator' came to mind. I wondered how often the delegates present had earnestly examined their own assumptions about educational 'social commitments', to elucidate the kinds of 'commitments' encouraged or discouraged by their own theoretical frameworks and practices, institutional arrangements and professional networks. During the day in workshops delegates wrestled with the central conundrum posed by Porritt when he warned: 'we must be careful how much we rub people's noses in the radicalism of this education for sustainability initiative. Some people will just walk away from it'. It was a very stimulating and enjoyable day. There was a great deal of debate, positioning and various expressions of commitment.

Feedback from the workshops revealed two broad schools of thought on this issue. One accepted the need for a much more radical stance, and supported Porritt's assertion that 'you can't deny the radical intent behind all this – the context of interdependence brings in an entirely different political ideology'. On the other hand, it was argued that it was very difficult to discuss such issues in schools, given the current political climate. Also there was a desire by teachers to avoid being prescriptive in what they taught, despite Porritt's argument that teachers needed to be prescriptive what was right and wrong because education for sustainability had a moral universe at work behind it.

There was no consensus. The degree of radicalism was clearly the main issue. Widening perspectives in the classroom were commendable, but some were concerned that critical perspectives could also degenerate into 'conspiracy theories and cynicism'. One other comment that stayed in my mind was that environmental education had taken 20 years to become established as a concept. It was folly to abandon the term and replace it with a new one now.

As I joined the M42 motorway and headed towards the Black Country and home my final thoughts on the day's events were that what people seemed to be saying was that a 'balance' needed to be struck between the need to challenge the underlying social and economic issues which shape the sustainability debate in the classroom and the need to respect the mainstream context in which professional teachers work. I wondered what action people would be taking, individually and with colleagues in the near future to move this debate forward, to move education for sustainability forward - and maybe to do something 'for the environment'. What would I be doing?

John Elliott (1993: 19) has argued that the development of environmental education in the last decade or so, both in the UK and elsewhere, has neglected to provide answers to the educational questions and issues it poses. He claims that environmental education has either been reduced to a passive process of knowledge acquisition or conflated with the promotion of some version of environmentalism, defined as a particular dogmatic set of beliefs about the ideal relationship between human beings and their environment. The outcome of the latter Elliott (1993: 19) suggests is that educational systems have had difficulties in incorporating environmental education at the heart of the mainstream curriculum in schools and as such environmental education may suffer the fate of other ideologically loaded curriculum development enterprises that have emerged in schools, lingered for a time, and then, vanished, including 'Peace Studies', 'Development Education' and 'World Studies'. He also questions whether the promotion of a 'sustainable development' perspective in schools is any more likely to command the professional and social consensus which is necessary to establish environmental education as a major and stable dimension of the school curriculum. He stresses that it is intellectual rather than environmental values which define the learning process and justify giving environmental education a central role in schooling (Elliott, 1993: 20).

moving towards the new millennium

By 1995 the report of the British Government Panel on Sustainable development was stressing that:

Education on environmental issues and on environmental values should be available throughout life to enable citizens to see for themselves the need for sustainability and to help convey the necessary sense of individual responsibility for a healthy environment.

(BGPSD, 1995: 12-13)

This arose from obligations set out in Chapter 36 of UNCED's programme. In 1996 the UK Government's strategy document on environmental education in which the Department of the Environment co-ordinates policy for nine government departments was published: *Taking Environmental Education into the 21st century* (DoE, 1996a). It was based on the DoE report (DoE, 1996b) and was the government response to initial recommendations of the British Government Panel on Sustainable Development (BGPSD, 1995). This strategy provided a general framework which encompasses the National Curriculum, 16-19 sector, further and higher education, training and informal education. The strategy's objective is:

To install in people of all ages, through formal and informal education, and training, the concepts of sustainable development and responsible global citizenship; and to develop,

renew and reinforce their capacity to address environment and development issues throughout their lives, both at home and at work.

(DfEE, 1996)

In February 1995 there was a national government sponsored conference which was notable for the first such co-operation between the Education and the Environment ministries. It gave rise to the publication *Teaching Environmental Matters Through the National Curriculum* (SCAA, 1996). This was guidance from the government's new curriculum and assessment agency, SCAA. Six years on from the previous government statement, *Curriculum Guidance 7* (NCC, 1990), the document reviews and restates the relationship between environmental education and the school curriculum. It reasserted the government stance of the Dearing Review, that environmental education is in the statutory National Curriculum and space has been cleared for schools to pursue their own concerns and shape their own curricula: the agenda is in school hands.

The document was controversial before its publication. 'The use of the phrase 'teaching environmental matters' as the report title and within it was seen as an attempt to side-line the phrase environmental education' Scott and Reid, (1998:219). Whenever the truth of this, more significant was the statement of aims, which was regarded as being more instrumental and narrowly focused. Compared to the 1990 government policy statement, as well as the shift away from the use of the term 'environmental education', there was an absence for the need to provide for opportunities to acquire 'values, attitudes and commitment' and the abandonment of the aim to 'protect and improve the environment'. Such changes do seem to be significant, even the addition of a reference to sustainable development can be seen as an afterthought. The significance of the 'for' component of environmental education in *Teaching Environmental Matters* was also diminished. In the SCAA publication, unfortunately, there is no clear sense of the important debate regarding wider educational goals, as captured for example by the Geo Visions Project (*Teaching Geography*, 23:4, 24:1) and the concern to engage [supportively] school students in becoming active citizens, that is an 'education for participation'. As Scott and Reid (1998) suggest, it could be that this revision is principled and due to an analysis which casts doubt on the continuing usefulness of the three-component model of environmental education which has served as the dominant curriculum framework for the last twenty years or so' (p. 220). If so, it would be in tune with some of the on-going international debate about the purposes of environmental education (see for example, Gough, 1987; Hoffman, 1994; Janse van Rensburg, 1994, 1996; Payne, 1997; Walker, 1997). This issue about the purposes of environmental education is picked again below and in chapter 7.

Alternatively, it could be a move away from the more 'controversial' aspects of the 'for' component, i.e. towards an environmental activism where action [either direct or indirect] doesn't mean actually getting involved. David Uzzell distinguishes between two main categories of environmental action: 'namely actions which directly contribute to solving the environmental problem that is being worked on (direct environmental actions) and actions whose purpose is to influence others to do something to contribute to solving the environmental problem in question (indirect environmental action). Indirect actions are

concerned with 'people to people' relations, while direct actions refer to relations between people and their environment' (p. 404). Neither type of action is likely to be supported within the *Teaching Environmental Matters* document. Support for this view according to Scott and Reid comes from SCAA's Consultation Document on *Values in Education and the Community* (SCAA, 1996), where there is one environmental value expressed:

We value the natural world as a source of wonder and inspiration, and accept our duty to maintain a sustainable environment for the future.

(SCAA, in Scott and Reid, 1998: 220)

Scott and Reid suggest that such a value 'is limited in scope: where for example are the foci on development issues, on the urban environment and on local involvement and action taking as required by Agenda 21?' (p. 22). Scott and Reid (1998: 221), argue that the policy document was very limited, it had no analytical evaluative overview and without this it was unlikely to have the impact which is desired, i.e. to become the government's policy *in use*. What was missing and what needs to be addressed are the questions of the ways in which such policies might be established (the visioning) and then developed and achieved (implementation). It is these questions which need serious attention [now] and these areas where schools and communities need support.

By 1998 the Panel for Education for Sustainable Development (1998: 28) were declaring that the case for an education which enables children and young people to participate in efforts to achieve a more sustainable future is largely understood and endorsed by policy makers and teachers, business and the community. What is less widely understood is what education for sustainable development looks like in practice, in terms of learning activities and outcomes.

Education for sustainable development or education for sustainability provides an integrating framework for social and environmental education (Symons, 1996: 57). She suggests that the development of empathy with non-human nature is important if it is not to be valued solely as a resource for human use. A knowledge of natural systems helps children understand the interconnection between all life and the way human actions affect these systems. It should be linked with a critical knowledge of the social systems and discourses that shape our lives. Only this combination provides an adequate basis for understanding causes, exploring alternative solutions, making decisions and taking responsible action

Moving into the new millennium has engendered much interest in our past, present and future. In the run up to the 2000 review of the National Curriculum QCA set up a number of advisory groups, including one on 'education for sustainable development'. A positive start to the new millennium was made when in November 1999 schools received copies of the revised national curriculum to be implemented in September 2000. The main thrust of the revision on this occasion has been a reduction in prescription and an increase in flexibility. The new National Curriculum (DfEE/QCA, 1999) continues the tradition of teaching environmental education/education for sustainable development through the subjects of science and geography, and for the first time both 'education for sustainable development' one of the 'new agenda'

topics of the national curriculum review (Rawling, 2000) appears as one area for promoting 'learning across the curriculum'. The National Curriculum documents state:

Education for sustainable development enables pupils to develop the knowledge, skills and understanding and values to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future. There are opportunities for pupils to develop their understanding of sustainable development within the school curriculum, in particular in their work in geography, science, PSHE and citizenship.

(DfEE/QCA, 1999:23 or 25)

Louise Robinson (2001) states that 'at the heart of the 'new agenda' of citizenship and sustainable development, is a recognition that schools should empower young people to be active in developing the kind of world they want to occupy as adults. In thinking to the future, the importance of education for sustainable development, as a vital area of active citizenship, is clear (p. 56). 'There is now a strong feeling that many of the established 'adjectival' geographies, such as environmental education and development education, whilst expressing distinctive traditions in thinking, have now converged into a single albeit complex notion' (Lambert and Balderstone, 2000: 364). Whether this is termed 'education for sustainability', or broader concepts such as 'education for participation' (Holden and Clough, 1998), or even 'Citizenship', all are recognised to be legitimately concerned with understanding both current and future contexts within which humans and nonhumans live [and might live] and relate to each other, and taking mindful action to improve such relations, both now and in the future.

In its efforts to build a 'world class' education system, Eleanor Rawling (2000) suggests that the present Labour government 'adheres to the principle that 'what matters is what works (Blair, 1998)'. In this respect, she argues, 'unlike the New Right' dominated Conservative governments of the late 1980s and 1990s, 'it is pragmatic, willing to incorporate ideas from a range of ideological perspectives' (Bell, 1999: 221; in Rawling, 2000: 217). She goes on to say, 'the initial focus of its policies has been on standards in the basics, but the attention of ministers and the DfEE is already moving on to the so-called 'new agenda' topics identified in the national curriculum review -personal, social and health education, citizenship, education for sustainable development... The task for the next five years is for the geography education community to be involved in re-shaping and re-imaging school geography to fit the new demands of the twenty first century' ' (*ibid.*). I would extend this to the rest of the National Curriculum in order to provide 'the capabilities young people will need in the twenty first century to lead a fulfilled life and to help create a better world (Geo Visions, Introductory flier, 1998).

Of course, sustainability, education for sustainable development or education for sustainability is not a product of new millennium angst. In *Geography in the National Curriculum* (DfEE, 1995) the programme of study at key stage 3 overtly required study of countries at different levels of economic development, and development was also a 'thematic study'. As a geographical theme of the programme of study, it could be 'taught separately, in combination with other themes, or as part of the studies of places'. *Geography in the National Curriculum* was also strong on environmental issues, this time at all key stages, and at key stage 3

used the term sustainable development directly. And as already emphasised, it had already been discussed and theorised within the environmental education movement for quite some time.

One response to issues concerning sustainability is that they are too problematic for young children. However, it has also been argued that young children face difficult issues in their daily lives from which we cannot always protect them and to exclude young people from participation and from the consultative process, is increasingly seen as an outdated view of childhood which fails to acknowledge children's capacity to reflect on issues affecting their lives. If we do not provide opportunities in school to address such issues we end up with curriculum content unrelated to the experiences of children and to the wider social world, a curriculum without external relevance. In consequence children are forced to collude with the silence around anything that may be painful, controversial or that does not have clear answers.

It seems we have come along way since 1990 and 1994. Perhaps like no other 'subject', environmental education is diverse. I would argue that the two main changes that have taken place in environmental education since the late 1980s are, first, movement away from a largely teacher-, school- and community-based form of curriculum development to a centrally organised activity; and from an enduring perception of environmental education as a close relation of *science* education to an approach that is now much closer to *social* education (Robottom, 1996: 45). Curriculum 2000 and the emphasis on education for sustainable development is the culmination of a gradual shift in the conceptualisation of environmental education at policy level, from close relation of *science* education to *social* education, deliberately looking beyond empirical questions and implicating questions concerning social values and political action as substantive topics for educational study; as influencing educational activity; and as being influenced by educational activity. The National Curriculum certainly legitimates the engagement within environmental education of important social and social reconstruction issues as advocated in the various intergovernmental reports of the late 1980s and early 1990s. Both national and international policy statements mobilise and imply definitions of environmental education that step beyond the notion of education as something only to be found in school classrooms. In what way the centralised curriculum and curriculum development will resonate with this social and political agenda for environmental education is yet to be played out in classrooms and schools in England and Wales. A third gradual change emerging is perhaps the movement away from the three-component model of environmental education. But we need to go back to 1994 to Holly Hill County Primary School and meet up with Suzanne once more.

issues

'Joy Palmer (1998: 35) notes that the last few decades have without doubt seen a great proliferation of documentation pertaining to teaching and learning about the environment. We have access to definitions, aims, guidelines and ideas for interpretation, at national and international levels; we have, equally without doubt, international acknowledgement at all levels (including by many governments) of the importance of environmental education and the entitlement of all to receive it. We have witnessed a substantial refinement

of the language used to talk about environmental education, and of appropriate modes of delivery' (p. 24). She also asks: 'but what is the effect of all this upon everyday practice?' (p. 24)

Bill Scott and Alan Reid (1998) write that such initiatives and support 'over a period does, of course, have an effect and there can be no school within England and Wales where environmental education has had no impact and where some aspect of its goals are not, at least partly, understood and enacted – even if this is a default position arising from the introduction of the National Curriculum whose scope embraces aspects of environmentally focussed issues, albeit at a fairly basic level' (p. 214). They go on to claim that: 'however, despite much effort, only in isolated schools has environmental education achieved the prominence that its supporters would wish or achieved the influence that its own aims would seek' (p. 214).

The limited research evidence available suggests that environmental education is still not being planned or taught in a coherent and comprehensive way in many English schools. In an annual report to the Council for Environmental Education (CEE), based on OfSTED inspections of 682 primary and secondary schools in autumn 1994, the HMI responsible for environmental education reported that only 17% referred to environmental education, only 2% had any policy for environmental education and where there was a policy there was not necessarily a management plan to achieve it, 1% had undertaken an environmental audit, and 10 schools had a co-ordinator in place. Also in the mid 1990s the National Foundation for Educational Research (NFER) undertook a number of specific research projects in environmental education. Their briefing paper *Environmental Education: Teaching Approaches and Students' Attitudes*, funded under phase III of the ESRC Global Environmental Change Programme emphasised that only a small minority of schools saw environmental education as essential, only 7% had produced a specific environmental education policy, 42% had no environmental education provision of any sort, and less than 25% had a co-ordinated, cross-curricular approach across many subjects. Geography, science and PSE were used as the main vehicles for environmental education. The main constraints to delivering environmental education in schools in the UK were identified as lack of timetable time, because of the need to meet statutory requirements, lack of resources, lack of staff expertise and lack of staff motivation (Tomlins and Froud, 1994). 'These conclusions are sobering, yet were certainly substantiated at the time by my own experiences as a teacher educator and educational researcher' (Palmer, 1998: 25). In my time as a teacher educator I would have to agree with the overall conclusion of Palmer.

Scott and Reid (1998) offer another perspective on the situation in England. The reasons 'are complex and are undoubtedly the result of a range of issues concerned with both the contested nature and purposes of environmental education and with local curriculum factors, which have tended to shift over time' (p. 214). Prominent amongst such issues, Scott and Reid suggest are:

- a mismatch of aims between the school system as a whole and those of environmental education itself
- the large scale social engineering which many forms of environmental education seem to require for success

- the difficulties associated with large scale curriculum and school reform
- the teacher energy and time which has been needed over the past 10 years or so to develop and then quickly revise the statutory National Curriculum
- conflicting and confusing advice provided by government on the ways in which environmental education (as a non-statutory 'cross-curricular theme') might be established in schools within that tightly defined and prescribed curriculum
- perhaps crucially, the way that environmental education became characterised within the National Curriculum by an integrated (horizontal) approach which made it difficult for it to either fit within or challenge the strong subject-based (vertical) nature of secondary education.

These issues are discussed below and in chapter 7.

aims

The aims of this chapter and the two which follow, are to:

1. foreground aspects of the 'environmental work' of a primary school teacher, Suzanne, using her own narratives both within particular conversations and composite typifications of her articulations within several conversations over a period of time. Teachers have their own theories about environmental education, whether explicitly acknowledged or implicitly revealed by their practices (Robottom, 1987; Walker, 1995). This foregrounding is done to give evidence of the complexity and committedness of Suzanne's professional knowledge, and to share with others, Suzanne's experiences and perspectives as an environmental educator who appears to be living, at least in some degree in her professional life, the kinds of narratives identified at the beginning of the chapter. Teachers also function in environments which impose practical and conceptual constraints upon their work (Walker, 1995). Any foregrounding will have to account for these realities.
2. 'uncover' how these articulations or textual commodities of identity:
 - (i) managed to get in place – that is, become part of the teacher's presentational repertoire
 - (ii) and are put together and deployed in micro-situations to achieve particular ends in an attempt to understand Suzanne's environment-related thought and practice. Here I do not take the patterns of thinking and activity to be exclusively constituted by educational principles and concerns, though the research only focuses on these.
3. locate these articulations or textual commodities of identity within a wider discursive space of good pedagogy in environmental education. Here, I am concerned to connect the personal to wider social, cultural and political debates, to present a critical commentary and establish a relationship with the recent literature. It is not my purpose to evaluate these articulations, or to identify one best theory among competing theories, or to resolve differences. Instead I look to focus on certain epistemological aspects of the debate over what constitutes good pedagogy.

In chapter 6 there is more of an emphasis on aims 1 and 3 and in chapter 7 more of an emphasis on aims 2 and 3.

The first aim draws our attention to the status of the agency and effectivity of participants in research. 'Foregrounding' is one way of conferring status on Suzanne. It can be seen as a narrative device in an attempt to create 'linguistic reciprocity' - to help to bridge the cultural and linguistic gap that disciplinary discursive regimes have created between teachers and teacher educators. Such a move makes displaying one's mastery of academic discourses, hence one's cultural capital, secondary and provides a more 'empirical' account that is less cleaned up. This also helps convey the complex, constructed nature of the authorial self.

Such an approach is not so much a way of backgrounding theoretical discussion, but of placing discussion in a specific context, where explanatory ideas are part of the narrative flow. In this sense, it is a kind of 'empirical' research in order to work towards a theory of pedagogy. Jennifer Gore (1997) argues that pedagogical theorists have tended to neglect systematic observations of the:

very phenomena which they are attempting to understand. The neglect of systematic data gathering is partially connected with the general rejection by radical educational scholars of anything that appears positivist (Ladwig, 1996). But, in disparaging the work of 'empiricists', these theorists have limited their own theoretical accomplishments.

(p. 214)

I would agree with Gore when she argues that 'systematic evidence is necessary especially if claims about pedagogy are to carry persuasive power in relation to the multiple audiences for whom theories of pedagogy are intended (p. 214). The distinction being made, as Gore points out, is the degree to which what is typically referred to as 'empirical reality' holds a central place in the analytic work. She also suggests that 'teachers who are already burdened with work need more specific strategic advice than has been available in most of the radical pedagogical literature' (p. 214). However, like Gore, I do not want to suggest that 'empirical' research somehow provides an uncontaminated view of the realities of pedagogy. In the end this is not an empirical thesis. It is, rather, a picture of the conditions of empirical discourse.

The second and third aims, in relation to the first, are a form of deconstruction, they are concerned with discourse or textual analysis. The methods grouped under this broad title of discourse analysis are based on the assumption that an individual's world view is socially constructed; they involve a perspective on language which sees language not simply as a device for communicating information about reality in a transparent or straightforward way, but as constructing and organising that social reality for us. Language is a domain in which our knowledge of the social world and its practices are actively shaped. In these terms, discourse analysts are interested in language and texts as sites in which social meanings are created and

reproduced, and social identities are formed. The role of discourse or textual analysis as employed here, is to identify the environment-related educational discourses used by Suzanne, and the depictions of reality and the ideologies they convey – in relation to a wider discursive space of good pedagogy in environmental education. In this sense the second and third aims are to produce an ideological critique (Bennett, 1996: 163). It could be argued that this ‘foregrounding’ as a preliminary to textual analysis/ideological critique is no more than a gesture of ‘linguistic reciprocity’.

Like deconstruction, because textual analysis attends to the *particular* devices employed within a *particular* text to achieve its *particular* effects, textual analysis will tend to use direct quotation more frequently than other styles of academic critique’.

The work of Norman Fairclough (1989, 1992) is useful here as a broad schema to characterise this ideological critique. Fairclough’s 1992 volume extends the work he first developed in his *Language and Power* (1989). In the earlier work, he outlined a way of looking at discourse which considered three levels of analysis. These three levels have since been refined. Firstly, there is text analysis in which there is attention to the formal properties of the text (as I have outlined in chapter 6). The next level is that of ‘discursive practice’ wherein are considered the processes of textual production, distribution and consumption. Here the focus is upon where and how texts are socially produced, how they are consumed in different ways in different contexts. The final dimension of Fairclough’s schema is that appertaining to social practice. Here he relates discourse to ideology, power and hegemony, ‘discursive practices are ideologically invested insofar as they incorporate signifiactions which contribute to sustaining or restructuring power relations’ (p. 91).

The point I want to make here is that although Fairclough’s concern to address the characteristics of textual, interactional and broader social contexts is a useful analytic schema, this is not to suggest that these can be unproblematically ‘read off’ and used to anchor analytically the processes of social construction. There is also a danger that such an analytical approach tends to focus on the reproduction of certain discursive practices and their contexts and to foreclose the possibility of representing particular discourses as ‘sites of struggle’, where different forms may have clashed in the past. The controversies and the resolutions, the attention to the dynamics of change, is attenuated.

The work of Gilbert (1992) is also used here. Gilbert suggests that the structure of an image – that is, the representations of a theory or ideology ‘is constructed by the presentation of data and generalisations in texts’ (p. 65). He proposes five general questions which can help in the identification of these images. The questions are used as a basic framework of analysis, in combination and on a discretionary basis:

1. what topics, propositions or broad concepts provide the organising of the discourse?
2. how do concepts, terms, metaphors, jargon, and other stylistic devices elaborate the structure of the discourse?

3. what are the underlying problems which have generated this discourse? How has the discourse articulated these problems? From whose perspective?
4. what theories provide the descriptions and explanations thought relevant? What relationships, causes and consequences are proposed? On what premises is the account based and what assumptions are made in the course of the explanation?
5. what perspectives, questions and theories are not developed?

All of this allows us to look at several instances of environmental education practice in a primary school and Suzanne's theories of teaching and learning - through the window of the methodology of this research project. I have chosen to intersperse the conversations/texts presented in each chapter with an analysis/interpretation of the meaning I think I was able to understand both from being a participant within the original conversations and in reconsidering later these conversations as a written text using Gilbert's questions as a basic framework. It is at this point in the analysis that a number of the specific conversations over a period of time become composite typifications. 'Later' means on an ad hoc basis after September 1996 and up to December 2000 - as I could create time to devote to this work.

'Educational research involving conversation as method is deceptively complex. Each situation is unique and the simplicity of a truly 'natural' interaction was not always easy to achieve' (Hart, 1996: 36). The teachers at Holly Hill had seldom been asked to articulate and elaborate in spoken form on what it is that they do and take for granted in their everyday professional lives. They rarely have to make explicit their theories of practice used daily to conceptualise their own teaching. They have developed their thoughts through experience and so thinking about why they teach environmental education is sometimes elusive. The reasons for teachers' actions are often intuitive and spontaneous and so conversation which asks them to articulate taken-for-granted assumptions about teaching in some coherent oral or written form is a struggle. As a researcher my challenge was to find a way to engage in genuinely constructive conversations every time we talked; that is, to create conditions to engage teachers in ways that rendered the ordinary, familiar things of their daily practice, more important and meaningful, as personal practical theories that were critical to making sense of classroom practice.

Suzanne, Francis and Hazel were also very busy with their work and there was often little time for them to think about anything other than what was 'going on now' or 'next on the agenda'. To get all three teachers together was a rare occurrence, and it was a privilege if they agreed to spend some time, even an hour, with me. I also found, at least to begin with, the teachers, especially Francis and Hazel, were somewhat surprised that anyone would be interested in their thoughts and practices.

foregrounding and analysis

This chapter looks at environmental education provision at Holy Hill School through some general themes.

conversation/text 1

environmental education: existing provision at Holly Hill

This was a more structured conversation with Suzanne (year 6 class), Francis (year 5) and Hazel (year 4) carried out in the staffroom after school in November 1994. The conversation was taped and a transcript made. The actual questions I asked during the interview have been grouped together and presented as composite questions, as have their answers.

My purpose in writing this first analysis is to sketch a perspective on the teacher's thinking and practice in environmental education. What they do in their classrooms, school grounds and local environment is a reflection of their particular ideological perspective or worldview, their personal practical theory, their beliefs and their values. It is an attempt to foreground the teachers and their practices from their point of view, uncluttered by the literature or 'heavy analysis'. Many of these ideas and themes are picked up again and developed further. After this Francis and Hazel 'drifted away' from the project.

- 1. How would you describe the existing environmental education at the school in terms:
of aims and priorities
approaches to learning
the way the curriculum is organised?**

aims and priorities

Suzanne

Yes, environmental education has always had a high profile at the school, albeit of our own devising, a unilateral way of working between Francis Hazel and myself. As a group of teachers we have always shown concern for our immediate environment and tried to instil in children the need to care for everything around them. Priorities are concerned with the immediate environment to which children can most easily relate and feel they can be part of and have influence on.

The children need to have wondrous experiences of nature and the natural environment. Over the years the school has gained a reputation in the local community for the caring of injured animals and ailing plants, for taking an interest and having a commitment to 'nature' and for being 'green'.

I see the following as the kinds of wondrous experiences the children come back years later to talk to me about, such as:

- hatching chicks and caring for young ducks, turkeys etc
- planting trees - physical work
- building the school patio
- visits which they remember going on whilst in my class
- growing things (pumpkins)
- events we organised - sheep shearing, wool spinning, goat minding
- making the local environment and church booklets.

I know I can't turn the clock back on children, but I'm still trying to recreate (bring out) a sense of wonder that I and my children have experienced while growing up. By understanding, enjoying and being curious about the local and global environment the problems we face can be put into context. These are all first hand experiences and part of what I label as the more traditional areas of my environmental education teaching. Young children are naturally curious and enthusiastic about the 'magic' of nature.

Hazel

Our priorities are to use the local environment in a variety of interesting ways in order to enhance the children's knowledge of the environment. I aim to encourage the child's knowledge of green issues and to look at the wider issues of world environment.

Francis

The priorities of environmental education at Holly Hill are to:

1. educate children as to the care of the countryside
2. make children aware of the diverse and complex variety of plant/wildlife found in the countryside
3. develop an awareness and appreciation of its (the countryside's) aesthetic qualities
4. make children aware of the fragility of plant and wildlife brought about by pollution, road building, urban sprawl and their contribution to the extinction and rarity of some species
5. extend children's concern to world-wide issues.

Much of this is experiential. Children need to experience things, to use their imagination, to make mistakes, to be responsive to a challenge, to take responsibility for their decisions and

actions, and to recognise and accept the consequences of those decisions and actions. Children need the opportunity to try things and to reflect on their efforts. We are opening a window for children onto life – and the dynamics and unity of all life.

approaches to learning

Francis

The initial approach is to make full use of the school grounds and to build work around this.

Hazel

Yes, and to include field studies involving work in the local environment and comparisons of other environments. It includes work with the local community and it aims to support the children's growing independence.

Suzanne

Our approaches are individual, we have many caring, environmentally aware members of staff, although this might not be immediately obvious to a visitor. Most things I do with my classes can be related to the environment. I find that the things that children enjoy most are animals and growing things. Everyone makes an effort in spite of other overwhelming pressures.

In terms of content this tends to be closely related to the National Curriculum and in some instances trailblazer determines the way environmental education goes. Increasingly because of the National Curriculum less time is now devoted to environmental education. We have to fit it in as and when we can.

Hazel

Yes.

Francis

The school encourages the children to treat the school grounds with respect i.e. not dropping litter, and respect for trees and plant life. Here I am emphasising the importance of children understanding the cause and effect of their actions.

Hazel

We also encourage recycling within school, the planting of new trees and shrubs and caring for the local wildlife, such as feeding the birds in the winter.

Suzanne

We want the children to be proud of and appreciate their surroundings, both indoors and outside.

We do not have an environmental code of practice as such. It is really just down to commonsense, that is, the teachers acting as appropriate role models and having high expectations of the children. As a staff we decided a long time ago not to accept inappropriate behaviour towards the environment, whether dropping litter, damaging plants and trees, harming animals and so on. In that sense we have a naturally evolving code of practice.

Hazel

It is a spoken and action code rather than a written one, and one that works very well. As staff we try and set good examples for the children and try to deal with incidents and issues as they occur, rather than a detailed written code which may not be readily applied by the staff or readily accessible to the children.

Francis

Yes, we have an unwritten code as such, an unwritten set of guidelines and a practical code of behaviour. I think it would be a good idea for the older children to make their own for the school. A Holly Hill pupils code.

Suzanne

And I am sure there are always things we have overlooked and could improve on, but overall it this approach seems to work very well. I like to have something to look forward to - something growing, something developing, a visit to plan and follow up.

Francis

Much has been done in the last five years. With time and help, no doubt further improvements could be made.

Hazel

The facilities for working with the environment at the school are excellent. We are very fortunate compared to some schools. The school grounds, our position, the local area with its large variety of different landscapes and ecosystems. It really is a pleasure to do environmental work with the children. We do provide a stimulating learning environment for the children. Most of the resources we use are in-house and focused on the local environment.

Francis

We make full use of our own local facilities and make full use of any literature, competitions, visits and visitors, promotions that become available or are offered by various agencies. Where possible use is made of the schools location, that is being close to the M1 motorway, local woods, local lakes, the opencast mining and local land reclamation schemes. There is so much that can be done and is done.

Suzanne

My class really enjoy the visit to the local open mining pit, which is still being mined. They are shown round by an official, do various activities and go right up to the top and right down to the bottom of the pit. It's huge. The Christmas visit to Sherwood Forest with all three of our classes is another excellent and very enjoyable day out. We combine simple orienteering exercises with some simple ecology work and consideration of conservation. We have lunch in the forest, in one of the more isolated wooden teaching huts. The children love it.

And our work is supplemented by any other relevant materials including books and literature and learning resources from various environmental organisations. And of course trailblazer offers another focus and set of resources for environmental education at Holly Hill.

curriculum organisation**Suzanne**

Environmental education is taught generally within our topic work, which pulls in aspects of the science, history and geography National Curriculum. English also features in the use of stories and poetry, as does art, which is very important and even occasionally maths through trailblazer. Much of the work revolves around local studies and use of the school grounds. Sometimes we become involved with local community activities and this offers opportunities for environmental education as well.

My approach has always been very flexible - but increasingly is having to meet the needs of the National Curriculum i.e. becoming more rigid. However, I am beginning to see ways of using the National Curriculum more effectively. Other teachers approaches are fortunately not like mine. Our strength as a school is in our wide ranging interests and diverse approaches.

Francis

Environmental education can be enriched by almost all the other school subjects and school life - music, drama, art and artistic activities, dance. This cross-curricular reinforcement makes topics both more interesting and meaningful.

Hazel

We use these local environments as a learning resource. And they are encouraged to look after their local environment.

Suzanne

All the staff, and especially at Key Stage 1, do a local study during the summer term as well as integrating the use of the local environment into the work schemes throughout the year.

Francis

The emphasis is very much on first hand experiences and active learning. The children are encouraged and expected to make oral and written observations, to make drawings, to make collections, to take photographs, to look and see, to sense the atmosphere of the area of study: its smells, sounds, life-activities and appearance. All of this is usually completed in small groups with teacher and parental support and with or without the use of worksheets.

teaching and learning styles**Suzanne**

We get together to plan for the year. At this stage the children do not have any input. But once the curriculum is up and running, if issues or interests arise as the learning progresses I can make room for them. Perhaps this reflects my own way of doing things, where as other members of staff may prefer to stick more to the original plans.

Francis

The national curriculum has resulted in less choice for the teacher and the children, especially in environmental studies. In fact the National Curriculum has virtually eliminated a more flexible approach to environmental studies as recommended when I was at college.

Hazel

Within the constraints of the National Curriculum I try to find as many opportunities for the children to make individual and group decisions about the way that our work goes. Increasingly it is not an easy thing to do.

Francis

Although we are constrained by the National Curriculum we do encourage the children to express their own points of view. They do have views of their own and generally they are quite knowledgeable about some everyday issues. We encourage them both to express their own views and to listen to the views of others. They readily listen to topical environmental issues, as discussed on television or in the news and newspapers.

Suzanne

We actively encourage the children to express their own views and they will do so. Perhaps they are less willing to actually listen to the views of their peers.

Francis

This can only be done in terms of the school grounds. But even this is difficult, so there is no actual decision making. Action involves taking care and looking after the school grounds - not damaging trees, flowers and shrubs, litter etc.

Suzanne

Yes, this just relates to the school grounds where they are guided to make good decisions about for example - where to establish sapling trees, locate bird boxes etc.

- 2. To what extent is the children's learning concerned with education about the environment (i.e. factual), education in the environment (i.e. experiential) and education for the environment (i.e. promoting positive attitudes and values)?**

Francis

The actual percentage is hard to define, because it depends on whether the area of study is the immediate environment or global issues, but we try to emphasise all the approaches.

Suzanne

First hand experience in the local environment is extremely important at this stage of the children's development and is included whenever possible. Education for the environment in terms of promoting positive attitudes and values is something that occurs through all our work. The children's learning does not have to focus on particular environmental issues or problems to achieve this, though having said that, issues are becoming more and more important within our teaching. If you wanted an order of priority, it would be I think, first, in, then for, then issues and problems and then about. Though as such it is difficult to separate them, and as I said whenever the children are involved with learning

in the environment, it is also always for the environment, implicitly and explicitly.

Francis

The children's learning and interest in environmental issues lays the foundation for the development of skills and understanding which gives them the confidence to express their own views and opinions - to speak and write with confidence about environmental issues. Their understanding is built upon the presentation of the pros and cons of a situation/issue and the causal effects. We encourage the children to analyse the situation, which promotes thinking and the consideration of alternative solutions.

Suzanne

Yes, it is essential that children do feel they can do something about environmental issues/problems and make their mark toward a better environment. Children can understand that there are some things that they can do at this age that might have or lead to positive effects, and as they get older. I would hope they would at least pass on a love of the environment to their own children and maybe take up an interest with an environmental connection or join an environmental organisation or even make a career directly in this field. I think trailblazer helps in this way.

3. What about issues of development? To what extent do such issues feature in environmental education provision at Holly Hill?

Suzanne

There is less emphasis on development issues as such. Inevitably when dealing with environmental issues, say, such as pollution, then there are opportunities to consider development issues, but this is usually more implicit than explicit, and focused locally or elsewhere in the UK rather than overseas.

4. What are your aims for developing the environmental education provision at Holly Hill?

Hazel

We intend through trailblazer to develop a range of new activities and continue to look at ways of improving our local environment.

Suzanne

I think a fresh look is needed. We have been doing all these activities for a good few years now. They have developed over the last ten years. We have to consider our existing provision and build on the positive elements. But

I need more time to think about this. Time seems to be against us more than ever before and I know I have spent less time on school ground improvements over the last 2 years. This is because of the greater emphasis on trailblazer and my secondment to the local authority two days a week to facilitate its development at primary level. We also have lots more school curriculum meetings, the disruptive behaviour problems I have this year with three children in my class. I used to have groups of children working with me at lunchtime and after school on environmental projects, but I don't seem to be able to find the time now.

Children must pick up so many negative ideas these days resulting in either a 'I can't possibly do anything about this therefore I will not bother' attitude or 'things are so terrible I am very worried and anxious, even bewildered and depressed about the situation.

I try to alert and inform without a doom-laden future. Although things might be bad/very bad/horrific children of key stage 2 age need a positive outlook. I try to place more emphasis on what is going right with the world - discovering the world in an innocent way. I try to place more emphasis on what is going right with the world - discovering the world in an innocent way.

text 2

early influences for Suzanne

At my request, Suzanne wrote this text in December 1994. I wanted to know more about any early influences on her thinking about the environment and environmental education.

Suzanne

When I first started teaching I felt that it was considered rather abnormal to be concerned about the environment. To be involved with 'rural studies' was all right, but it was also seen to be mainly for the less academic pupils. I was always concerned not to appear as 'off-beat' or 'suspect' in any way. I felt that it was important to be as 'normal' as possible, whilst still showing commitment to the environment and environmental matters. I think this is what I mean by being 'apolitical' as such, not showing any strong leanings in any direction, but at the same time committed to the environment and its improvement through education. I was not reading about other people's thoughts and ideas, just doing my own thing really, I just chose my own direction - what I thought children should know, do and be guided through.

Fortunately most things I do in class I can relate to the environment. There are many things that interest children that offer the beginnings for environmental education: looking after animals, growing things in the greenhouse, caring for the school grounds - and often the children do not notice they are working at all. And we have the opportunity to work outside in the school grounds.

I have always aimed to give my class a kind of corporate identity achieved by doing things together which they will always remember, that is, one large environmental project each year. I am confident in saying that this has happened each year since my run of year 6 classes. In the past various on-going environmental projects within the school grounds have been achieved: the building of the school patio and quiet area, extensive tree planting, the construction of the pond and also a local study of the village and its environment and then writing a booklet about it. There is also a photograph collection of each project kept in scrapbooks to show my current class what has been achieved in the past, and visitors of course.

I often meet ex-pupils in the village. It is a joy to hear that they remember the projects they did with me - it makes me feel that teaching about the environment, involving them directly, must have had some effect.

I aim to develop a sense of independence with year 6 children by encouraging them to organise and carry out tasks by themselves and in small groups. They need to learn the skills of co-operation and how to be reliable. Their self-esteem is improved in this way. The children have responsibility for various recycling activities, looking after the greenhouse and plants, the school patio, the infant courtyard and its plants, the school pond, and rearing the chicks.

I also encourage year 6 children to devise activities for the younger children, particularly infants. We have a school trail which was established a couple of years ago. The class devised suitable activities at various stations along the trail and helped groups of infants to carry out the tasks. My class also wrote stories relating to the trail and the school grounds, which they read to the younger children.

Thinking of the youngest children I would want to utilise their natural curiosity and interest in their surroundings to help them appreciate and

learn about the environment. As much time as possible should be spent in the local environment, looking at everything out of doors, finding out, earning in and about the environment. Life cycles and interdependence are very important initial ideas to get across. For example, the children monitor the life cycle of the peacock butterfly in order to understand the fragility of each stage of the life cycle and that each must be completed if the species is to continue. We also think about what happens if the nettles on which the caterpillars feed are sprayed with weed killer. The blue tits that depend on the caterpillars have less food to eat. This familiar example helps children to understand the delicate balance of any ecosystem. If diversity decreases whole chains of existence can be threatened. Similarly, young children can go out and study a local tree, find out about all plant and animal life that depends on the tree, and begin to understand the importance of the tree's ecology. Should the tree be used/destroyed or left where it is? The children can begin to consider the alternative consequences. And simple questions such as: 'how long will it take for a new tree to grow?' can then be connected with specific issues, such as the large-scale destruction of the tropical rainforests. How can this be avoided? What can we as individuals and as a society do?

As the children proceed through primary education, experiences and further learning will occur with children beginning to look beyond their immediate environment - beginning to develop a caring and concerned attitude to the environment. I see a kind of natural progression here.

As you can see I have tended to concentrate on the immediate school environment and local area. It is an excellent resource, all the children are interested and it can be used to promote learning in terms of knowledge, skills and attitudes - positive attitudes. I think in the past I have tended to feel that this was probably enough. At first I was even reluctant to become involved with trailblazer. Then I realised that we had in effect been doing trailblazer like activities - but with trailblazer the children could have their work and efforts more publicly documented, recognised and rewarded if they were officially part of the scheme.

I don't think I can separate learning in, about and for the environment, as children begin to acquire knowledge, skills and attitudes as soon as they experience something new. If children

understand the needs of small creatures - food, shelter etc, children will want to protect their habitats. The importance of realising they can and should do things for the environment will then follow on.

I work with the basic idea that our immediate environment needs looking after because they can see the effects of our actions. From this caring for the local environment we can then move towards thinking more globally.

environmental education provision at Holly Hill

Suzanne was the motivational and managerial force behind environmental education provision at Holly Hill School. This is a result of her enthusiasm and commitment to the environment, her role as curriculum co-ordinator for the humanities and environmental education and the general support from the rest of the staff, parents and governing body. Francis and Hazel were also very committed to this work. The three teachers acted as a team in terms of environment-related educational provision, with overall leadership usually in the discrete hands of Suzanne. Other members of staff at the school emphasised and involved themselves in environmental education to a more limited extent. Their classrooms and their environment-related educational practice was not the focus of this research project. Francis and Hazel tended on occasion to regard themselves as being locked into a curriculum, preparing pupils for transition to the secondary school (local high school or grammar school). Suzanne always saw possibilities for environmental education.

Both Joy Palmer (1993, 1996, 1999) and Ian Robottom (1996) have emphasised the undeniable element of personal commitment evident within much environmental education provision. 'One strong message from our research is that most people who are involved in successful environmental education are involved because of personal commitment rather than perceive obligation' (Robottom, 1996: 51). 'I wish to stress here that teachers of environmental education tend to be able to express very clearly that they have such a commitment and that this commitment to environmentalism forms a very important part of a personal professional philosophy or theory that guides their teaching' (ibid., p. 52). This was certainly the case with Suzanne.

The school, through the leadership provided by Suzanne and increasingly through her co-ordination of the Trailblazer scheme, has unofficially and officially earned its status as a 'green school' within the local authority/county. Individual, class and school-environment related projects are an important aspect of this provision. It has given the school a local 'news worthy' profile, which Suzanne and the other teachers have used to the benefit of the children in terms of generating support and sponsorship funding for the environmental projects and for the purchase of learning resources etc for the school. The school is also actively involved in the recycling of paper, bottles, aluminium cans and clothing.

An obvious and tangible characteristic of the school is its ethos of caring. Responding to the needs of the pupils, and the emphasis on self-esteem and confidence and showing respect and concern for other people

is a written and practised policy. Caring for the environment and showing how this contributes to quality of life, is as yet, an unwritten component of this policy (September 1996). Recycling, energy efficiency and 'healthy eating' weeks are ways in which the school provides a role model.

At Holly Hill a 'whole school' approach is used to deliver environmental education. By 'whole school' I mean the emphasis on the management of school buildings and grounds in an environmentally aware way, environmental projects within the school and school grounds that involved all pupils at the school whenever possible, these projects were often financially supported by the local community, and more occasionally also collaborative links with the local community – in terms of local environmental issues. Each year for a number of years, pupils and staff have been instrumental in planning and negotiating community expertise to conserve wildlife habitats and develop a series of gardens, patios/quiet areas, play areas for the pupils, and tree planting projects - within the school grounds. The children have been actively involved in all stages of the projects, including the planning and decision-making process, and so learnt a great deal from the interaction with other adults and from planning and working on the developments. Such projects have significant educational value in the way that they involve the children at all stages and empower them by giving them ownership of a project.

In discussing the development of the Ecologisation of Schools in Austria¹, Peter Posch (1999) emphasises that initiatives have focused at three levels: 'at the pedagogical, at the social/organisational, and at the technical/economic level' (p. 342). These levels can be used to give structure to the idea of a 'whole school' approach at Holly Hill. At the pedagogical level Suzanne, Francis and Hazel aim at creating stimulating and meaningful learning experiences and at involving pupils in 'ecological ways' of thinking, acting and feeling. At the social/organisational level the three teachers have been concerned to build and cultivate a culture of open communication and decision making and at developing a social climate which is characterised by mutual recognition and respect for all, teachers and pupils alike. At the technical/economic level the school is moving towards the ecologically sound and economic use of resources and the involvement of pupils in its ecological management.

Environmental education at Holly Hill has an emphasis on the involvement and collaboration with local community groups and agencies. Suzanne, supported by the other teachers had developed several community supported school-based projects. Collaborative links between schools and community are certainly becoming a stronger and more common feature in terms of environmental education provision. Research in Australia suggests that environmental education in [Australian] primary schools increasingly involves collaboration with a range of community agencies – 'collaborative links between schools and community groups are becoming stronger and more common' (Robottom, 1996: 50). One of the reasons for this Robottom suggests is the restructuring of the Australian education system and new systemic demands that 'result in a diminishment of resources for environmental education, with the result that schools are looking outwards to community links as sources of support. 'We have found a consistent pattern of

functional linkages with community groups and agencies' (Andrew and Robottom, 1995, quoted in Robottom 1996: 50).

These supportive links with the local community offer Holly Hill and its teachers sources of financial, human and resource support, as well as curriculum ideas and media coverage of collaborative environmental events and school publicity. Ironically as Robottom (1996) suggests, 'this pattern of seeking partnerships with community groups, while possibly a forced one resulting from educational restructuring, is nonetheless consistent with national and international discourses in environmental education which demonstrate a strong rhetorical commitment to the notion of 'community' (p. 50). Further, as Robottom (1996) suggests 'the new nexus between schools and community in environmental education is not just one of mutual convenience and temporary alliance, but juxtaposes differing views and purposes of education and research. The relationship of schools and community groups is a topic for further research in environmental education' (p. 51).

In a recent paper by David Uzzell (1999) *Education for Environmental Action in the Community: new roles and relationships*, Uzzell argues that we need to 'change our understanding of the nature of environmental education and how it should be taught and learnt' (p. 397). He argues that environment-related education provision should be based on a 'genetic' model of *social influence*, and an '*action competence*' approach to teaching and learning. The paper offers a critical overview of environmental education and is concerned with the shortcomings of its practice within schools. He identifies five principal shortcomings or problematical areas:

environmental education is invariably based on a teaching and learning model which is top-down and centre to periphery; environmental education does not lead to action competence; environmental education lacks authenticity; the track record of demonstrable success in changing the attitudes and values of children to the environment is questionable; the social, cultural and political context must facilitate participation and change.

(p. 397)

The paper concludes with a brief discussion of four models of the child-school-community relationship; these are a useful device for describing environmental provision at Holly Hill and the child-school-community relationship. The models consider the extent to which environmental education provision sets [local] environmental problems - in their larger social, economic, political and cultural context', and 'facilitates participation and change' (p. 408); that barriers between the school and community are broken down, community members are present in the school and the school and pupils are active in the community, and the relationship enables not only action possibilities but develops concrete actions in the community (p. 410-11).

The fourth model, 'the school as social agent', according to Uzzell makes for a high degree of 'authenticity' in environmental education (p. 411) because it aims to involve pupils 'in a dynamic learning process which focuses on concrete environmental problems and issues encountered in their own

communities at the local level (Elliott, 1995: 65). There are some good examples of this type of relationship, as Uzzell emphasises, in particular the ENSI project, and the EcoAgents project in Finland, and the programmes in Denmark and the are illustrations of schools progressing from the stage of being guests in the local community to becoming agents of social change (p. 412).

Environmental education provision at Holly Hill was closer to Uzzell's third model: 'the school as guest in the local community'. In this situation there is [has been] a breaking down of the barriers between school and the local community, and education is action oriented, that is it has the potential for the development of action possibilities. The model is characterised by pupils addressing their *activities* to the local community in an attempt to work on and influence conditions which they have explored theoretically in their classes' (p. 410) - the concern is with [learning] activities - pupils communicate with the local community to realise their *activities* (p. 411) - but they do not usually become involved with direct *actions* on the local environment. The important point is that such action is a dual process: one of educational learning whilst taking action on the environment - learning action. I think the emphasis is important, if environmental education is not to be open to the kind of criticism illustrated by Aldrich-Moodie and Kwong (1997) who are concerned with the emphasis on environmentalism rather than education, and claim in their publication, by a London-based 'right-wing think tank' the Institute of Economic Affairs (IEA) that 'criticism of environmental education has mounted steadily in the past two years, with critics arguing that environmental education efforts are largely: doomsday oriented; fear generating; geared towards activism; and devoid of science teaching' (p. 87). Their criticism reveals a [their own] particular viewpoint concerning educational value, which I address in chapter 7; and a content and outcomes model of curriculum and pedagogy rather than a process model.

Environment-related educational provision at Holly Hill is certainly not based on a top-down and centre to periphery communication of learning requirements. Instead, the emphasis is on active participation by pupils in the learning process and to an extent the negotiation of the conditions of learning (see below for a more detailed discussion) As Uzzell argues traditional models of social influence have assumed that adults influence children's attitudes and knowledge in a unidirectional and asymmetrical manner, while children are regarded as passive recipients with minority status. Teachers, environmental experts and parents are examples of (supposedly informed) groups whose role is to educate children to a particular understanding of the world. This is the basis of Moscovici's (1976) 'functional' model of social influence. The problem with this model is, of course, that despite the activities of environmental groups, the government and academics over the past 20-30 years to make the public more environmentally conscious and adopt environmentally-aware attitudes and behaviours, there is little evidence to suggest that this has been achieved on any widespread scale.

A more desirable and realistic model of the social influence process is becoming more recognisable within the educational practices of schools, and has over the last decade or so been readily applied by various individuals, environmental agencies and the government, to environmental education. The concern is with

active participation of pupils in learning and even with pupils negotiating the conditions of learning. This is related to what Moscovici (1976) refers to as the 'genetic' model of social influence, the basic premise of which is that knowledge is not given but socially constructed. In this model, the educational process is not one of meaning taking but meaning making. The significance of the 'genetic' model suggests not only that all social groups, including children are knowledge producers, but that they have the potential to be agents of social and environmental influence and change.

Symons (1996: 57) suggest there is obvious potential for using environmental education topics as a vehicle for delivering *all* National Curriculum subjects in the primary school. While this does not happen at Holly Hill, Suzanne, Francis and Hazel did regard the environment as a theme and issue that could permeate much of the National Curriculum, and, in particular, Suzanne put this into practice whenever she could.

Francis, Hazel and Suzanne have all been teaching for over twenty years. Their environment-related practice involves both work in the classroom and in the school grounds and local environments. In their classrooms they all try to integrate environmental education into most aspects of their national curriculum work. For example, they all read stories about living in different environments such as deserts, the rainforest and cold mountainous regions, about endangered species, and about living creatures. Art activities with an environmental theme were always popular, as were guest speakers on specific issues or themes. In science, all emphasise the importance of all living forms of life and the need to care for and protect life, even when as Suzanne has suggested to her children that protection actually means 'leaving them alone'. Geography and science were usually the main subject vehicles for the delivery of environmental education, though a more integrated approach, through 'topic work' or issue based enquiry was also practised. The inter-disciplinary holistic nature of environmental education was certainly in evidence at Holly Hill.

Margaret Roberts (1996) introduced a framework for considering teaching styles and strategies based on Barnes *et al* (1987). The original 'participation dimension' framework was concerned with the introduction of TVEI Curriculum 14-16. Roberts has adapted the framework so that it can be used to analyse and interpret different styles of teaching and learning in geography in the National Curriculum². Roberts' framework can be used as an analytical tool to identify 'styles' of teaching and 'to show how teachers can adapt their strategies operating across different styles according to the context in which they are working' (p. 238). Like the original 'participation dimension' framework Roberts bases her classification of approaches to teaching on the amount of control teachers maintain over content and the learning conditions and activities. Three basic styles of teaching are differentiated using four indicators for where control is exercised which relate to a simplified teaching and learning sequence: (a) questions, (b) data, (c) interpretation, and (d) conclusions. At one end of the spectrum, the 'closed' style, teachers maintain tight control; over all aspects of the subject knowledge and learning, while at the other extreme, the 'negotiated' style, the construction of knowledge is maximised by the learners themselves. In between there is the 'framed' style. The framework can be used as a descriptive device for highlighting the approaches to

teaching and learning used by Suzanne, Francis and Hazel, both through a sustained sequence of learning i.e. an enquiry over several lessons, and within a single lesson. I observed several lessons of Francis and Hazel in the early stages of the research project and numerous lessons of Suzanne over the two years. Based on these observations all three teachers tended to use either framed or negotiated styles of teaching within individual lessons. Only Suzanne used a negotiated style of teaching and learning over a sustained sequence of learning.

In a framed style of teaching the learners would be guided by explicit environmental themes, problems/issues or questions. Even though the teacher will decide the focus of the study or enquiry, pupils are encouraged to generate their own questions. Presenting pupils with questions or problems/issues to be solved, or decisions to be made creates what Roberts describes as a 'need to know' among the pupils. The resources and content are still selected by the teacher but they are more usually presented as 'evidence' to be interpreted and evaluated. In a framed style the teacher helps promote specific process and learning skills. Evaluation is important, as pupils need to understand the strengths and limitations of different sources of information and techniques for presenting or analysing the data. Conflicting information or viewpoints are explored and it is possible for pupils to come to different conclusions when examining this information.

In a negotiated style of teaching and learning, which Suzanne used more frequently than Francis and Hazel, she identifies the general theme to be studied but the pupils generate the questions that will guide their enquiry either individually or in groups. These questions are negotiated with Suzanne, who will also provide guidance about the possible methods to be used and the sequence of enquiry, as well as the suitability of the sources of information to be used. The pupils are then 'on their own'. The information is collected independently by the pupils and they are responsible for selecting appropriate methods for presenting, analysing and interpreting these data. The processes of learning involved are often as important as the outcomes themselves. The outcomes of these open-ended enquiries are not always predictable. In 'unskilled' hands they can yield limited educational outcomes. They may even 'go wrong' with more experienced teachers. The use by Suzanne of the strategy of teacher overview of the sources of information selected and the methods used by pupils, was a way of retaining some influence and control over the conditions and direction of learning that took place, so that learning outcomes could be more realistically determined.

The shift from passive learning of facts, rules and principles to the active generation of knowledge by pupils, and from a top-down communication of learning requirements to greater active participation of pupils in negotiating the conditions of learning was consistently evident from my observations of Suzanne. She was also concerned to promote individual reflection by pupils about the quality of their learning. In this sense, Suzanne held a dynamic concept of learning according to which pupils not only acquire knowledge and experiences for the future, but take greater responsibility for shaping their working conditions in the present (Elliott, 1994).

The teachers produced their own learning resources and made frequent use of the County library service for schools to provide books, CD Roms and other learning material. Visits from outside speakers, such as representatives of national NGO organisations (WWF and Keep Britain Tidy Group) and local environmental/countryside/wildlife groups were also effectively used. Representatives from local business organisations, such as Sainsburys, that offered an environmental education programme for schools were also utilised. Usually pupils visited the organisation and investigated aspects of their environmental policy and practice.

Classroom based enquiry using problem solving and decision-making activities were used to support learning. Suzanne, in particular, used them to provide a context in which pupils can apply and develop skills related to valuing. Strictly speaking, decision making is not the same as problem solving. Problem solving has the same stages as decision making: identification of issue, question or problem, investigating the evidence, evaluating the alternatives, and choosing a course of action; but problem solving involves two further stages: putting the decision into effect (action) and evaluating the consequences of those actions. Whereas the decision maker attempts to predict the consequences of decisions, the problem solver actually follows the progress of these consequences. Suzanne used both strategies, the large annual projects tended to be of the problem solving kind, other activities tended to be of the decision-making kind. In enquiry based learning both strategies were used, and provide a meaningful sequence of learning activities designed to provide pupils with opportunities to practice and develop a range of environmental and citizenship skills and development their understanding of the environment and specific issues.

Enquiry, decision making and problem solving can be seen as a systematic process of making sense of and resolving issues, questions and problems [of citizenship] which can arise from people-environment relationships. They are demanding learning activities as pupils are required to use their knowledge and understanding of geographical, scientific and environmental concepts and processes in the interpretation of data which may be complex and wide ranging. They require the pupils to utilise a wide variety of geographical skills and techniques and social skills. Enquiry is also an approach within which the values dimension of environmental issues are considered. Deciding how to teach the subject matter and value complexity of controversial environmental issues is complex (Corney and Middleton, 1996). Teaching about environmental issues specifically involved making decisions about a teacher's aims for pupils' values education, and the teacher's own role in handling controversial issues with pupils. Teaching strategies are likely to reflect a teacher's own value judgements.

Values education approaches have been summarised by several authors including Huckle (1985) and Fien and Slater (1985). Commonly approaches include: values clarification, values analysis, moral reasoning and values probing (Fien and Slater (1985). The approaches can be seen as progressive in that pupils move from clarification (identify, recognise) of their own values and those of others, to the analysis and evaluation of those values, to making decisions on issues based on such analysis and evaluation, and translating those decisions into some form of action. All of these dimensions were commonly present in

Suzanne's practice, other than the translation of those decisions into some form of direct action on the environment. However, this values education was not formalised into stand-alone values clarification/analysis exercises. The activities always took place within an enquiry approach and based on group and class discussion.

Much work has been done on the teacher's role in handling controversial issues, in particular the Humanities Curriculum Project (Stenhouse, 1975), and the work of Stradling *et al* (1984) and others in the 1980s and Firth and Plant (1995) in the 1990s. Three distinctive roles have commonly been theorised: a 'neutral' role, in which teachers act as 'neutral' chairs in discussion and enquiry; a 'balanced' role, in which teachers try to ensure that pupils have access to a range of different perspectives; and a committed role, in which teachers make known their view to pupils and in some cases may encourage them to adopt a particular viewpoint. Suzanne tended to see her role as a 'balanced' one. Suzanne's position was that the content of the value judgements and decisions should be determined by the pupils and not herself, but that she was responsible for the intellectual conditions in which they are determined. As a teacher in environmental education, she understood the issues that were being taught and believed that they constituted educationally worthwhile content, that is she valued them as desirable objects of reflection, judgement and commitment. Her concern was not to promote a particular evaluative stance towards the environment, beyond the notion of 'wonder' and 'care', but to foster those qualities of critical reflective thought which enable pupils to construct a responsible and informed stance of their own.

Group work was an integral part of such work enabling small groups of pupils to discuss, reflect and co-operate. Although some educational goals, such as learning to co-operate and learning to work in a team can only be attained through group work, broader educational goals were also recognised. For Suzanne group work was commonly employed to promote a range of learning and interpersonal skills including the development of self-confidence, improvement of communication skills, exploration of ideas, clarification of understanding, valuing the ideas and opinions of others, handling diversity and where necessary facilitating the search for consensus. These were skills that had already been developed to an extent in earlier years and were strongly emphasised and developed further in Suzanne's classroom. Again, the cognitive, social and aesthetic/spiritual aims of learning were emphasised.

Two main types of group or collaborative work are usually recognised: where pupils plan together and then work individually on the production of a group outcome, and where pupils are required to share their knowledge, understanding and skills through some form of problem solving or open-ended investigation. Suzanne used both approaches.

Local environments are a constantly used resource, whether the local stream, the village, visits to Sherwood Forest, the fields that lie alongside the M6 motorway, or the local open-cast mining site; as are the school grounds. Getting the children out of school and into the local environment and community is highly valued, it is seen as widening the children's horizons and helping to develop their understanding of themselves as

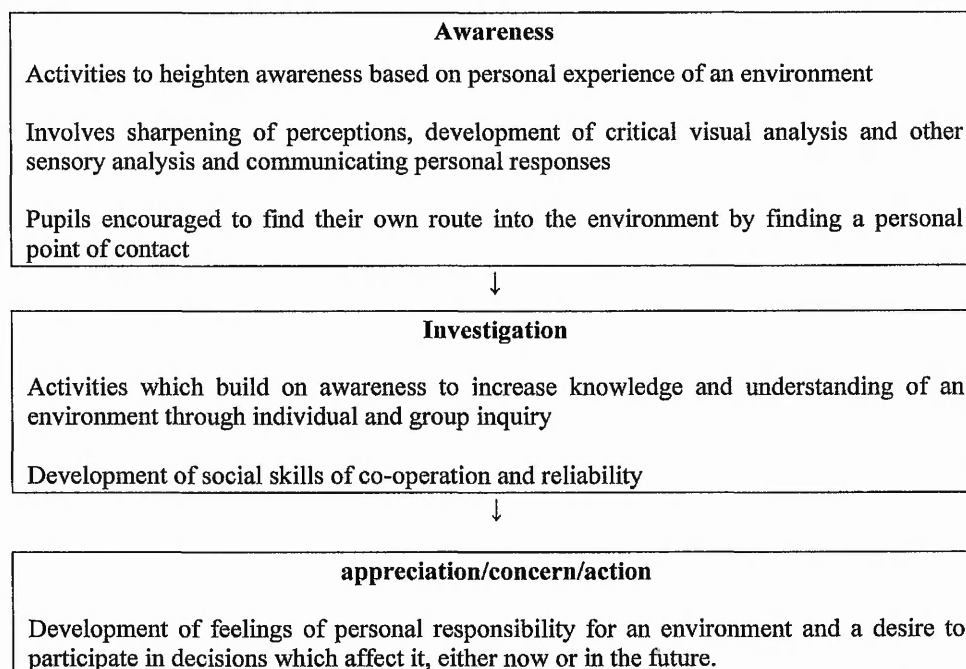
citizens of a wider community. Empathy and responsibility are concepts and attributes that are positively nurtured, as is thinking critically.

Half day and whole day fieldwork are used by Suzanne, Francis and Hazel. They tended to plan and carry out the fieldwork together whenever they could. This meant that children from years 4, 5 and 6 worked with or along side each other. The teachers valued this kind of social experience for the children, as it was seen to break down stereotypical views about different classes in the school and age. It also enabled older children to care for younger ones. The overall environmental aim of such fieldwork is for children to directly observe and experience certain aspects of local environments, rather than via some form of secondary source or mediated image. The approach to fieldwork varied in terms of teacher-led and more heuristic pupil-centred approaches; often it was a mixture of both dimensions, and always with an emphasis on affective learning. The use of enquiry-based learning was used on occasion by the teachers to provide pupils with the knowledge and skills they need to understand the details of specific local environment-development issues. Pupils are expected to become involved with the issue, carrying out both factual and values enquiry in relation to them, seeking possible solutions and considering the possible consequences of alternative solutions. This included for example the potential loss of a wildlife habitat due to the threat of new housing developments, and the problem of litter and the positioning of a recycling point at the local Sainsburys superstore.

Through fieldwork and enquiry there was commonly only minor emphasis on direct quantitative measurements, a much stronger emphasis on qualitative data, especially that derived from pupils asking other people questions and from their own direct experiences. Whether issue based enquiry or some 'mixture' of fieldwork – excursion involving look and see, outdoor exposition, enquiry, hypothesis testing, 'wondrous experiences' – and it was usually a mixture, the function of fieldwork for Suzanne and the other teachers, was that it enabled them to plan for the development of a range of practical, organisational, social intellectual and aesthetic/spiritual skills of their pupils, as well as their knowledge and understanding, through projecting these skills into a specific local environment and 'real world' questions or issue.

The teaching-learning process within this fieldwork/enquiry is a readily recognised one. It is predominantly a pupil or learner-centred model that emphasises awareness, investigation, appreciation and concern/action (Lambert and Balderstone, 2000: 30). In fact, awareness, investigation and concern/action is a useful framework to describe how Suzanne, Francis and Hazel approached a good deal of their 'environmental work' (a slightly modified version of the process teaching-learning model used in Lambert and Balderstone is shown below). There always seemed to be an attempt to balance the more tangible and overt aims to do with knowledge, skills, understanding, attitudes and values and the less concrete and more implicit intentions summed up in Suzanne's frequently used term 'wondrous experiences'. While the former are often given strong emphasis especially with older pupils, Suzanne always stressed the importance of the second. A distinctive feature of her environmental work was not just an emphasis on cognitive aims, but the desire to give pupils quite literally the opportunity to experience their own feelings and understandings

about-within-for the environment. As Lambert and Balderstone (2000) suggest, the latter are, arguably, at the heart of any individuals 'interpreting the world' (p. 28). It is in this sense that much of Suzanne's teaching was *for* the environment. Such study, handled sensitively, allows pupils to generate their own knowledge, and through this, their own understanding. Pupils were encouraged to develop their own [different and possibly conflicting] interpretations of the causes and possible solutions of environment-development issues in their locality.



A significant amount of the curriculum for Suzanne's year 6 classes was covered within the boundaries of the children's own environment and, as a consequence, enabled many aspects of the subjects within the National Curriculum to be addressed in a practical way. She emphasised on several occasions that while the development of the National Curriculum had meant greater curriculum prescription, she did not see the National Curriculum framework or the specific programmes of study as limiting; rather they were starting points for the development of children's environmental education, not ends in themselves.

The teachers saw environmental education as not just geography or science or visits or projects, but a fundamental *dimension* of education. It is 'life experiences', and it incorporates all aspects of life – it is like 'opening a window for children onto life' – and the dynamics and unity of all life (Francis). It is a form of learning which deals with personal imagination and intuition, responsibility and change. Much of the children's environmental learning is experiential. As Francis states:

Francis

Children need to experience things, to use their imagination, to be moved by things, to make mistakes, to be responsive to a challenge, to take

responsibility for their decisions and actions, and to recognise and accept the consequences of those decisions and actions. Children need the opportunity to try things and to reflect on their efforts and the consequences of their efforts. We are opening a window for children onto life - and the dynamics and the unity of all life.

In other words, Suzanne, Francis and Hazel see themselves as giving the pupils opportunities for 'life experiences' and preparing them for 'life in the real world'.

Recognition of an environmental dimension in most aspects of education is a standard response to or commonly suggested way of overcoming the problem of the eclectic nature of the content of environmental education. In this way, environmental education is considered to be an *approach* to education that incorporates considerations of the environment – rather than being a separate part of education. Joy Palmer (1998) argues, however, that 'either environmental education becomes equated with the whole of education, thus essentially losing its identity, or else selected features need to be singled out at anyone time to become a focus for teaching and learning. In either of these extremes, crucial elements of environmental education are highly likely to be overlooked or given scant attention' (p. 136). Here, Palmer is more concerned with a discrete 'content' that needs to be recognised and deliberately incorporated in a progressive fashion into teaching and learning. I recognise the significance of Palmer's concern and return to this theme of discrete 'content' below, however, the use of the term 'dimension', here, is not so much an emphasis on 'content' or an 'approach' as it is upon a basic aim or vision of environmental education. Learning respect, respect for life, seeing the interconnections, making decisions, problem solving, thinking for themselves – this is what seems fundamental to their view of education.

Within and beyond this notion of preparation for 'life in the real world' is a spiritual dimension to this citizenship education. The teachers want the children to have 'life experiences', to be awed by their experiences of particular environments so that they will see the beauty, the inspiration in these 'natural' area, touch the feeling of well-being, 'see' its spirituality. The argument of the three teachers is that if children have these kinds of 'life experiences' centred in their understanding of the environment, they will want to care for it. All the teachers pay close attention to spiritual feelings in this way, to such things as felling a sense of awe, wonder and mystery. On occasion this spirituality extended implicitly towards the children; through sharing experiences of such environments, the teachers hoped that the children might see themselves as all interconnected, part of one another, caring for each other. I think it was in this sense that Suzanne means that she is apolitical (see conversation/text 2 below). This notion of a spiritual citizenship with the environment seems to take her beyond politics, take her beyond having to take or represent one side of an issue. In addition to the cognitive dimension, all three teachers emphasised the emotional, spiritual, behavioural, attitudinal and moral aspects of learning.

The teachers recognised that changes were taking place in environmental education both through the national curriculum and other influences. They were aware of the international, government (as mentioned

in the introduction to this chapter) and LEA policy documents being published on environmental education and the shifting emphasis towards education for sustainability. They recognised the powerful statements that were being made about the potential of environmental education and the concern for more sustainable societies, but there was no explicit mention of education for sustainability at this stage. They did question the lack of support that was in place to encourage them to use the documents to develop their own practice.

Changes within environmental education were emphasised in particular by Suzanne through her involvement as Primary Co-ordinator of the LEA Trailblazer scheme. Her co-ordinator role involved a two-year secondment, the second year of which was during my first year in residence at the school. This meant that for two days a week Suzanne was working for the LEA in the council offices in Nottingham, working with the LEA advisors for environmental education and other subject areas. It gave her access to policy documents, informed professionals and regular discussion with such people. It also gave her insights into the environmental work of other primary teachers in the LEA through her induction and co-ordination work and her visits to schools. Such experience undoubtedly improved the quality of provision at the school. I visited Suzanne several times in this LEA working and learning context.

Francis, Hazel and Suzanne believe that the route to change is by reaching the children, because they are the next generation of 'informed and committed' adults and because children can influence their parents. All three teachers stated that in the main, the children were well motivated and show a propensity to be involved. Parents on the other hand, tend to be less enthusiastic and involved, though with numerous exceptions.

It was interesting that three equally committed people could be found in the same school. Whatever their individual experiences had been, Suzanne, Francis and Hazel were all channelling their thinking and spirituality toward a particular world view – an ecophilosophical view or personal environmentalist ideology – that informed their educational practice. It was an ecophilosophical view that involved pupils in:

- developing individual awareness
- moving beyond individual awareness in an understanding and concern for others
- making a connection to other people, other living things, to the environment, to the world
- a connection based on a foundation of ecological interdependence, which
- requires each person to learn how to be a responsible and caring participant within this interdependent system.

Using the five cross-curricular themes introduced into the National Curriculum in 1990 as an analytical framework, one can identify other characteristics of this educational provision:

1. relevance to the pupils current and future experiences
2. contribution to the pupils knowledge and understanding of the environment

3. involvement of pupils in discussion over questions of values and belief
4. emphasis on decision-making and practical activities
5. pupils explore the inter-relationship of the individual in the community
6. prepare pupils for life in a changing world

(Tilbury, 1997a: 94).

The cross-curricular themes were all linked to contemporary social, economic, political and environmental issues, and they attempt to prepare pupils for the world outside and beyond the school. Recognising the changing nature of society, the themes not only promote the development of skills, knowledge and attitudes which pupils need to deal with change, but also encourage them to take responsibility for themselves within change and to be active agents shaping change. This educational approach which supports a reconstructionist view of the curriculum was evident in the practices of Suzanne, Francis and Hazel. It complements the more academic, knowledge-centred view of education contained in the Subject Orders of the National Curriculum at the time. There was always a tension for the teachers to find time for this 'life in the world' approach within the demands of a knowledge-centred view of the curriculum and education.

The teachers associated these environmentally related values and beliefs about respect, responsibility and caring, with fundamental personal and societal values. They saw no real difference in helping children develop respect, responsibility and caring for themselves, for others, for living things, for the environment. They make an important connection between environment and self, they see it as part of a very basic value position. They aim to provide their pupils with a sense of hope and efficacy.

I have tried to make sense of the conversations I had with Suzanne, Francis and Hazel in this early period, in terms of the teacher's thoughts about their environmentally related practices, their reasons, their personal practical theories, as well as the deeper beliefs and values that guide their teaching practices. In many respects the teachers were 'doing environmental education' as described in the policy documents. All three gave it high priority, even with the demands of a changing national curriculum and increasing pressures for accountability.

I was privileged during my early residence at the school to have conversations like these from three dedicated people, who spoke unreservedly, often passionately about the reasons for engaging children in environmental education. What struck me about these conversations was that they saw education not so much about subject matter but about 'life in the world'. They tended not to give themselves credit for their own thinking. They tended to take their own value positions for granted. Most of their talk was directly related to their concerns for their pupils and the future of these young people. I was told repeatedly that environmental education is an essential part of education. It begins with the individual child, with an understanding of their own values and how their behaviour impacts on the local environment and on the world. It involves children in becoming better informed, in reassessing their own values and behaviour.

This critical understanding is best developed when educational experiences include the opportunity to be in, learn from and to reflect on the environment.

conversations/text 3

further conversations about environmental education

The following comments by Suzanne were made during more structured conversations at the university that took place after the interview of November 1994, during the Spring and Summer terms of 1995. They develop the issues raised above. The conversations were recorded and transcriptions made. The discussions involved both Suzanne and myself asking questions and giving answers. I leave myself out in the attempt to allow a continuous flow to the ideas of Suzanne.

Suzanne

approaches to environmental education

I recognise the three main approaches to environmental education within the existing provision at Holly Hill. Overall, in one way, there is probably a stronger emphasis on about and in/through rather than for. And I say in one way, because I do not think you can really separate the approaches as such, they are all part of the same environmental education process - the big difference is one of emphasis.

I suppose I do attempt to steer it, to direct it towards for the environment, but at school this is done in diverse ways. If we are telling young children that they have a choice, that they can make decisions about their own lives, then there can be no one prescribed curriculum for the environment. For the environment can mean many things.

I have not yet considered in any detail ideologies - I tend to be apolitical especially in my environmental education work. I don't think anyone, other teachers or parents would detect any leanings in either direction from the way I work with the children. Is this a weakness, a sign of non-commitment that I do not obviously fall into any category? Perhaps I do. I have emphasised already my commitment to the environment and to environmental education. But I am not aware of any labels, any categories I fit in to.

environmental education and the National Curriculum

My response to the National Curriculum was to plan and work to its basic requirements and overtime and with growing experience and confidence to 'fill-out' the curriculum. It is commonly recognised that currently

environmental education is delivered in a wide variety of ways within primary schools. I have no problems with the basic principles of the National Curriculum - a balanced and broad curriculum for all, an entitlement for all. Those ideas are fine, they match my own beliefs about education.

The environmental education aspects of the National Curriculum, through geography and science are a minimum entitlement, which I think often gets lost along the way. Either the environment is not emphasised sufficiently by teachers, or it is left out because there is not sufficient time to cover all areas of the National Curriculum.

Our efforts at school are on making the new system work - and having a fresh start. But hopefully teachers who think that environmental education has disappeared except from geography and/or science will be surprised over the next few years. As environmental issues/problems become more accentuated they will need to be tackled through education.

My idea of the minimum entitlement for young people in terms of environmental education would be:

- to explore, study and investigate their immediate environment that then extends more widely
- develop their own awareness, ideas and feelings, their own spirituality, reflecting on and making personal decisions on environmental matters
- have opportunities to take positive action towards caring for their environment - locally and globally.

To be effective and more effective environmental education must be:

- exciting, wondrous, stimulating
- 'hands on' and practical
- decision-making not didactic
- encourage positive thinking
- purposeful, that is have some effect on the environment, both now and in the future
- two ways of doing this is to connect it to home and with the local community
- a continual process
- high profile, not a 'fringe' subject or theme
- and caring - children have to learn to care for the environment

But the major problem with the National Curriculum is that we have moved back to a

traditional centrally developed curriculum, focused solely on the ideas of a few teachers and curriculum experts.

I have always enjoyed the spontaneity of working with young children. Some of that spontaneity has been lost now - or at least it seems threatened. Perhaps I am too old to change now, so I still like to go off at a tangent now and again, go with the flow of things, that is to try and give the children time and space within the curriculum for their interests - what they bring into school.

school policy statement

Looking back now we still need to formulate an appropriate policy statement and document for the school. Increasingly, I do think this is important. It says to teachers, the children and to parents, that this area of the curriculum is important, it has equal status with other curriculum areas. If schools are to have a mission statement, then certainly the environment should be mentioned within it.

It is simply time and pressure of work that has meant that an effective policy statement has not been written. We have not had sufficient meetings or inset days for its proper establishment. I have also been acutely aware of not being seen as 'imposing' developments and extra work on colleagues. I have taken a 'seeping through' strategy - we will get there eventually, but such a strategy is not always the most direct or effective way when developments need to be put in place immediately.

education for the environment

I think that we have to convince children that the environment is worth their time, effort and consideration both as individuals and as part of a community. If the environment is given a high profile, its importance stressed, pointed out, then education for the environment stands a greater chance of being effective. Children need to see themselves as part of the environment. It should not be seen as something external, something beyond them where problems exist. If children are educated in this way, as part of the environment, where the environment is seen as a part of their everyday life experiences, then the caring attitude I have emphasised before would come to the fore. And through this children will want to work on behalf of the environment. The more they feel a vital part of it, the more they understand the complexities. Therefore, children need to be curious, interested, enthralled and aware - qualities which if not encouraged at home should be developed by teachers from

nursery onwards. I think attitudes at this stage of educational development are very important - we have to encourage the right kind of attitudes and understanding towards the environment.

If we take the packaging topic that we worked on together, this highlighted some of the problems teachers have to address. The topic was a microcosm of a much larger practical teaching issue. Over the years I have witnessed that many children in Lapwing class have had a very simple and naive, but potentially very harmful attitude towards 'things', to resources, and by implication to the environment; basically things are produced, we use them, and we throw them away.

Whether this is the attractive wrapping around a new toy, food, clothes or even a Brent Spar - we have a tendency to see things in the short term. Very often commodities are seen in terms of their usefulness; to us; here and now - and no more. But much more thought should be given to this simple linear relationship which society helps to propagate. Education has to break this simple linear relationship. Children's learning has to take a critical stance - they have to begin to realise the complexity and interconnectedness of their understanding and actions. But it has to be done at their level, it has to be a part of their everyday life experience. Encouraging the children to 'take the issues home', connecting school, home and the local community was certainly an effective way. They have begun to recognise how their behaviour, their actions, and that of their family are part of the issue. The issues are being internalised, made part of their lives. They are being seen differently. They are not just something to study - the 'we are doing it at school' mentality - but experienced by the children.

I do think the home-school connection is a very important connection to make in environmental education. Young children gain a great deal of confidence in discussing things - 'issues' with their parents, and enjoy telling their parents how they should behave or act. This confidence was also witnessed when Lapwing class visited the university. They very much enjoyed talking to the students about the work they had been doing, and working with the students. This was probably an example of a critical learning incident for many of the children - an experience that will stay with them, and maybe shape their future attitudes and behaviour.

Sadly, not that all families have the time, opportunity or even willingness and interest to

listen to what children have to say. Home-school links can only be really effective when parents are committed too - to their child's education. But for children to have the opportunity at home to freely express themselves, to offer opinions and viewpoints, is for me, an important part of education for the environment.

In my teaching I have been concerned to move out from the individual to the school, to the family and the community. What is important is to emphasise to children how their actions affect others.

Of course we do not know the long-term effects of this type of learning. We have witnessed new and positive attitudes and actions by the children over the years, but that learning has to become embedded in their life experiences in a way that becomes enduring. Of course, in one sense, we will never know if any of that learning and commitment has endured.

We need to guide and help the children in their own learning in a way that hands over responsibility to the children as they grow up. This is a gradual process - of preparing children to take responsibility for their own future. But if we push too hard, over stress the many problems, we are likely to put them off, resign them to an attitude of 'what can I do about it?' We need to be very careful about overburdening young children with the problems of society and the environment. But choosing to ignore the issues or leave them until they are older is not the answer either.

I feel that sometimes we do overburden the children to a certain extent. And I often wonder whether primary school children have an expectation, or rather just assume that their present standard of living will continue into their own adult lives. Inevitably, I think the answer to that question is a resounding yes. But as educators we do have a responsibility to make the children aware of the possible consequences of this expectation - make the children responsible for their own expectations.

environmental education: making a difference
The following was based on a discussion of some ideas of Peter Martin, principal education officer of WWF, UK, written as a preface (page 5) *Making the Difference* by Edwards, P., Watts, M. and West, A. (1983).

Basically I agree with him; I suppose I could have written that piece myself. Care and thinking about the environment are of little importance to

people trying merely to survive or exist. Our environmental education is a cultural response which does not always connect with other cultural realities. Many Third World people do not have the luxury to think green.

I think there have been developments in environmental education over the last 20 years. Problems of the environment have a much higher profile now. But then again, could that also be because the problems have increased in dimension. Environmental awareness is evident in schools I know of, but I do wonder how much it reaches back into the home and the community (if one exists for them). As a group of teachers at school we realise that the standards of behaviour and attitudes to work and others that we try to cultivate in the classroom as part of the whole-school policy, sometimes gets forgotten once the child pass beyond the school gates. Does the same happen with our efforts to promote care for the environment?

From nursery age children should be taught through curiosity and first hand experience the wondrous nature of the natural environment. I think a caring attitude develops from this.

education for sustainability

This is a relatively new idea for me. The term was not really familiar to me, until I became the Trailblazer Primary Co-ordinator. It is certainly not something I was aware of deliberately setting out to teach, as such. If I think about it now, it has probably been something that I did without realising it. I can see that my teaching was concerned with the idea of ecological sustainability, but I am not sure I would want to apply the term education for sustainability to that. Sustainability should be an important issue or focus within our teaching at school from now on and given time I will plan it into the curriculum framework. But I do not think it will be a priority for many schools at the moment.

The National Curriculum seems to promote the teaching of separate areas of knowledge, clear-cut objectives, which produce neat little right or wrong answers. Teaching has been made to fit to this National Curriculum format. But there often isn't an obvious answer, or indeed an answer at all. It is something very open-ended. I think I tend to see education for sustainability for children as 'finding ways through'. The children have to see it in this way as well, considering different possibilities, finding their own answers. Information about issues and within situations can be presented to young children, but they

have to 'work on this', develop their own possible answers.

My first concern is to be positive, not to be pessimistic, not to be a doom and gloom monger. I have seen in the past the energy and commitment of young children made ineffective, where there is an emphasis, an over emphasis on the problems - and so many problems, that the children come to believe that they cannot do anything about them. Then there are the personal responsibilities and conflicts, the teacher promoting concern for the environment, whilst running around in their cars, we say one thing and do another - not necessarily a helpful role model for the children. I also feel that it is important that the children know that I am on their side, that we are all in this together, we have to work out possibilities together. I also encourage the children to realise and act on the fact that we all have our own ideas and opinions, and that their own opinions are as valid and potentially useful/not useful as anybody else's. There are no right or wrong answers, I encourage them to be sceptical and positively critical, not to simply accept what somebody has said. We have to keep the children's minds open - creative and critical rather than close them off into one accepted mindset.

Unless there is a commitment at a personal level to the environment, to environment-development issues, and to environmental education, then any form of environmental education runs the risk of being seen as having marginal status, and as just another 'ism', here today and gone tomorrow. Even in my own school, education for sustainability is unlikely to 'take-off', or do anything unless there is someone, in other words me, there to take a lead.

On the positive side there are a lot of environmental initiatives being directed at schools, such as the energy initiative we were involved with and the WWF UK futures competition etc. This does require flexibility and adaptability on the part of teachers. This can help promote environmental education in schools, but whether they will ever help establish environmental education as a major and stable dimension of the curriculum is something else. And then of course there is trailblazer.

Is it reasonable to expect education and young people to solve environmental problems?

I am happy that we have come a long way with raising awareness about environment-development issues. But there is a danger that we

are encouraging young people to see the environment as a problem. This may have harmful effects - it might be alienating them from the environment, rather than encouraging a positive, even affectionate response to the environment.

Sustainability is a very difficult concept to develop with children. The main way in which I try to introduce some of the ideas is through the study of specific habitats, food chains and life cycles and how human activity affects these. I try to establish the basic idea of ecological relationships - mutuality, interdependence and so on. I wouldn't necessarily use such terms with younger primary children, but by the age of 10-11, such ideas do have meaning for them. This can then be extended to our own life cycle and life-style.

I try to avoid the use of the word 'crisis' whenever possible although it is a word children will hear on the television and so on. Sometimes I think the idea can be very overbearing, very threatening to young children - we can burden their young shoulders with some very depressing scenarios about the future. For the same reason, I tend to avoid the use of the term environmental problems as well, this is a rather negative stance, and again if we are not careful children could come to see the environment simply in terms of being a problem or a series of problems.

At the same time I do not want to 'water-down' to play-down the issues and problems, but I think it is more important for children to consider their own actions, their own lifestyles, and to present the issues through this, and in ways which allow them to respect and develop a caring concern for the environment - to see possibilities, to see ways forward.

But in the end you cant avoid being political. This is the opposite of what I have said before! You cant avoid promoting the environment - what we are saying is that we value the environment, what makes a learning process for children educationally worthwhile is that it relates to things which matter to us in life. But that is not the same as promoting a specific viewpoint, a specific stance on the environment - a particular environmentalism.

educational practice: the rhetoric-reality gap within the national curriculum

The question of the match and mismatch between the rhetoric of the international and national policy documents and the reality of environmental education provision within the National Curriculum is like

most issues in education, inevitably complex, and variable depending upon particular location, context and circumstances. The analysis above has already offered a perspective on the overall structure of the environmental education provision at the school. This section considers some broader questions of environmental education provision within the National Curriculum as a preliminary to an attempt to disentangle the structure and 'content' of Suzanne's environment-related practices in relation to developments in environmental education during the 1990s.

There have been numerous historical and social/political critiques of curriculum over the years in an attempt to outline and classify the sets of coherent values and beliefs (ideologies) which shape environmental education and educational research activity generally. For Esland (1971) the introduction of environmental education into a school curriculum represents a fundamental challenge to the dominant conception, organisation and transmission of knowledge, creating for most teachers a conflict with their approach to teaching and learning. Others writing in the early 1980s such as Robottom (1983) and Volk *et al* (1984) emphasise and elaborate on the discrepancy between the acquisition of environmental knowledge and awareness in 'traditional' school programmes, and the action-orientated goals of the contemporary rhetoric of environmental education. Following on, Stevenson (1987, in Palmer, 1998) outlines a series of major contradictions between environmental education and schooling. The first major contradiction is that the 'traditional' purpose of schools is to conserve the existing social order by reproducing the norms and values that currently dominate environmental decision-making. Stevenson (1987) also pointed towards fundamental curriculum and pedagogical contradictions between environmental education and schooling. The goals, principles and guidelines of environmental education suggest a particular orientation of curriculum and pedagogical practices in which pupils engage individually or collaboratively in small groups in real issue, problem-solving, action-oriented activities. Inevitably such a focus also calls for interdisciplinary and flexible enquiry learning. In contrast, Stevenson suggested, school curricula tend to be subject-based and emphasise abstract content and problems. Further, a curriculum in environmental education is emergent and problematic, in that the content arises as pupils are involved in specific local issues, but most school curricula are predefined since they are designed to serve predetermined specific ends (those that can be readily assessed).

While environmental education advocates learning that is holistic and co-operative, school learning tends to be atomistic and individual...In environmental education rhetoric students are active thinkers and generators of knowledge, but in schools students are usually in the passive position of spectators and recipients of other people's knowledge and thinking.

(Stevenson, 1987, in Palmer 1998: 97)

Such practices and inconsistencies between environmental education and schooling, as described by Stevenson over a decade ago, may still hold true today.

Certainly the National Curriculum together with its assessment arrangements has led to increasing and not so increasing levels of prescription and specificity in the definition of a subject-based curriculum, both in primary and secondary schools. For the first time, from 1988 onwards, teachers in England and Wales were

provided with clear statements of pupil entitlement, targets and 'benchmark' standards for subjects, far removed from the inter-disciplinary, flexible modes of enquiry and understanding of the learner as generators of knowledge, portrayed in descriptions of environmental education.

Suzanne, Francis and Hazel all emphasise this tension when talking about environmental education within the National Curriculum:

Francis

The National Curriculum has resulted in less choice for the teacher and the children, especially in environmental studies. In fact the National Curriculum has virtually eliminated a more flexible approach to environmental studies, as recommended when I was at college.
(December 1994)

Hazel

Within the constraints of the National Curriculum I try to find as many opportunities as possible for the children to make individual and group decisions about the way that our work goes. Increasingly it is not an easy thing to do.
(December 1994)

Suzanne

I have always enjoyed the spontaneity of working with young children. Some of that spontaneity has been lost now – or at least it seems threatened. Perhaps I am too old to change now, so I still like to go off at a tangent now and again, go with the flow of things, that is to try and give the children time and space within the curriculum for their interests.
(December 1994)

The NFER research study mentioned above, (Tomlins and Froud, 1994) identified lack of timetable time because of the need to meet the statutory requirements, and lack of resources as the two major constraints to delivering environmental education. A more recent study by Littledyke (1997) who surveyed primary managers and teachers to assess the relationship between experience, attitudes and practice in science and environmental education found that many primary schools were prioritising the development of environmental education and that many teachers regard it as important and include it in their teaching. However, like the NFER (1994) research he also identified lack of curriculum time because of demands from timetabling National Curriculum subjects and lack of resources as factors deterring environmental education. He also identified lack of co-ordinator and teaching support and limited policy development as further constraints to delivering environmental education. Further limiting factors identified by Littledyke were lack of scientific understanding of environmental issues in many primary teachers and limited concern for or interest in environmental education in some primary teachers.

The constraints and inconsistencies are inevitably linked to school and classroom organisation, and to the day-to-day practicalities of teaching and learning. The style of learning implicit in descriptions of the environmental education process, involving, as it may, open-ended enquiry, ambiguity and pupil autonomy within an emergent curriculum, involves teachers in far more complex classroom management and indeed in taking more 'risks' in relation to maintaining order and control than the style of learning associated with more traditional subject knowledge acquisition tasks.

Another potential mismatch between the rhetoric and reality of environmental education relates to its primary location in an increasingly subject-based National Curriculum in primary schools. The accepted policy documents and guidelines expect environmental teaching and learning to be interdisciplinary and cross-curricular, yet in reality in 1994 [and since] we see a very strong emphasis on a subject based curriculum and the grounding of environmental education within science and geography. The subject-based structure of the National Curriculum could mean that environmental education will extend beyond geography and science only if the commitment and enthusiasm of individual teachers so decide – and this was the case at Holly Hill. A later government publication on *Teaching Environmental Matters Through the National Curriculum* makes the point very clearly. 'It is for schools to decide how to teach environmental matters through the National Curriculum and how far to go beyond statutory obligations. Environmental matters may also feature in other National Curriculum subjects [other than geography and science], not because they are required, but because schools choose to take up opportunities to include an environmental dimension' (SCAA, 1996). Whether this is the most effective way for the successful implementation of internationally and nationally accepted guidelines which supports an interdisciplinary approach, when teachers already have overburdened timetables because of the need to fulfil statutory requirements, is at least questionable.

A significant aspect of the concern for a cross-curricular and more interdisciplinary and holistic approach is also the question of dominant paradigm(s). Each discipline has a set of theories consisting of epistemologies and pedagogies which make that discipline distinctive from another discipline. The problem occurs when differences are identified. There has been some considerable activity to identify the theory set which comprises the field, environmental education and how the paradigmatic nature of environmental education coheres with and differs from the theory sets of the subject disciplines. Particularly important has been the challenge to the dominance of a scientific epistemological paradigm within environmental education and the focus on the action component of environmental education (for example, see Gough, 1987; Elliott, 1991; Fien, 1992, 1993; Robottom and Hart, 1993; Firth, 1995; Huckle, 1995). These writers share a common concern that the field of formal education and the subject disciplines are characterised by a materialistic western worldview. It is a worldview that sets the human species apart from nature and having the ethical right to manipulate nature for its own purposes. They also emphasise that there is a strong emphasis within school curricula for environmental education to be grounded within the scientific domain and within a scientific materialism/realism, that is a behaviourist, mechanistic and deterministic ideology.

While there has been considerable research in recent years on teachers understanding of the nature of science and how this may influence classroom practice, there has been little research to date on teachers' views and practices of science in relation to environmental education (Littledyke, 1997: 641). The work of Littledyke suggests that primary teachers with understanding and confidence in science had positive attitudes to environmental education and this can enhance environmental education. He also found that some teachers with confidence in science suggested the importance of a critical understanding of the nature of science and its role in environmental education. Even where positivist views are held by teachers, environmental education may be prioritised but the emphasis was on a 'view of science as finding truths, facts and as value free. They also emphasised scientific knowledge over scientific processes. Significantly [they] also saw science as a means of solving environmental problems (p. 654). However, unfortunately the research tells us little about the paradigmatic nature of the environmental teaching and learning that takes place and how it relates to theories of environmental education.

The national curriculum is potentially at odds with the form of environmental education in which teachers like Suzanne develop their own curriculum ideas, 'content' and strategies for teaching and learning. Suzanne alluded to this tension on many occasions. In spite of more centralised control over curriculum, in spite of the concern with 'coverage', teachers like Suzanne active in environmental education have found ways to support their own curriculum work. The recent change of emphasis in the national curriculum as emphasised above, may give the likes of Suzanne [were she still teaching] greater freedom to develop their own localised curriculum.

To what extent the teachers at Holly Hill, other than Francis and Hazel, saw her as an appropriate role model is difficult to ascertain, as they were not directly involved in the research project. What can be suggested is that the findings of the NFER report in 1994: lack of timetable time for environmental education because of statutory requirements of the National Curriculum, lack of resources, lack of staff expertise and lack of staff motivation – were not characteristic of the environment-related practices of Suzanne, Francis and Hazel.

threads of a complex practice

There are, traditionally, two commonly identified strands to teaching and learning in relation to the environment in primary schools, one is 'nature studies', the other is 'social studies' (Gillian Symons, 1996: 55-57). Suzanne's environment related educational practice incorporates elements of both of these traditions.

Suzanne

I aim to develop a sense of independence with my year 6 children by encouraging them to organise and carry out tasks by themselves and in small groups. They need to learn the skills of co-operation and of being reliable. Their own self-esteem is improved in this way. My class

have responsibility for various recycling activities, the greenhouse, the patio, the infant courtyard where plants are grown, monitoring litter and feeding the chicks. I always get my class to devise some activities for the infant classes. We have a school trail which we established a couple of years ago. The class work plan activities at each of the stations and then help the infant children as they carry out the tasks, it works very well. My class also write imaginative stories about the trail and the school grounds, which they read to the younger children.

(Summer 1995)

'Nature studies' has a long tradition in primary schools, the concern being teaching and learning about the environment. Suzanne's class has its nature table where children could experience the excitement of watching frog spawn, eggs hatch, young ducks, and sticky buds explode into life; and its nature trails. This focus is one that Suzanne still espouses:

Suzanne

I know I cannot turn the clock back for children, but I'm still trying to recreate (bring out) a sense of wonder that I and my children have experienced while growing up. By understanding, enjoying and being curious about the local and global environment the problems we face can be put into context. These are all first hand experiences and part of what I label as the more traditional areas of my environmental education teaching. Young children are naturally curious and enthusiastic about the 'magic' of nature.

(Summer 1995)

The concern is to build upon the enthusiasm and curiosity young children have for the 'magic' of nature and to introduce them to positive and hopeful aspects of life, to help children to develop empathy and solidarity with non-human nature. This 'nature studies' provision is very much 'wondrous' experiential learning, either 'look, and see' or 'hands on' - and marvel.

The sense of wonder which develops from this approach is extended into developing responsibility for nature by Suzanne. She uses practical activities such as looking after classroom and school grounds, animals and plants, tree planting and litter picks to develop this responsibility. 'In recent years this nature studies approach has been supported by a range of environmental competitions and other outside initiatives, where the focus is mainly on clearing up eyesores created by humans and creating beautiful 'natural' environments' (Symons, 1996: 56). Suzanne and Francis and Hazel have used these competitions on occasion. While Suzanne and Francis and Hazel regarded 'nature studies' as important, their approach to it was incidental and in the main non-timetabled.

While it is valuable for children to appreciate and understand 'nature' in this way there is a danger that they can end up by seeing everything 'natural' – trees, plants, animals, birds etc – as good, and all human activity as bad, as polluting – as a problem to be solved. Nature comes to be seen not as something we are part of, but as something to be protected from people. This approach can be reflected and experienced in the school grounds, where 'nature' areas are 'fenced off' from the rest of the playground, and into which the children are allowed only for an occasional, carefully supervised lesson. Symons connects this to concern at the global scale. 'It can be seen in the preservationist practice of excluding human activity from large areas of wilderness at the expense of the indigenous populations who may have had a sustainable relationship with the non-human nature' (p. 56). While issues of indigenous peoples and sustainable relations with nature cannot be considered here, the overall pedagogical emphasis is not unimportant. At Holly Hill a 'fencing off nature' policy was not in common practice. For most areas and for much of the time, children were allowed to use and enjoy them as and when they wanted.

An alternative tradition 'social studies' has focused on developing understanding of the urban and social aspects of 'nature' or 'the environment'. In this tradition, which is usually seen as being more 'critical', teaching and learning processes become as important as content and empathy with the environment. This was also an important dimension of Suzanne's environment-related educational practice.

Suzanne was as concerned with how children learn about society and nature as she was about what they learn. Here there is an emphasis on co-operative groupwork, on social relationships, the identification and solving of issues or problems, and active learning methodologies in an attempt to convince the children that change within the environment is also their responsibility. The educational aim for Suzanne is to develop children's critical awareness and understanding. This is done by using their everyday experiences of social life as a starting point and then, through discussion and techniques of contrast and comparison, the understandings that children have of their immediate environment are explored and extended in wider studies. Concepts such as power, conflict, interdependence and change are given formal recognition as appropriate study for the primary school. *Learning from Experience: World Studies in the Primary Curriculum* (Steiner, 1993) is an example of this approach, which stresses responsible citizenship and interdependence and the importance of providing opportunities to explore children's own feelings and opinions:

children cannot be expected to make sense of this world adults have created (either past or present) without some awareness that people act to fulfil wants, needs and ambitions in a world of finite resources. Thus far in human history, meeting one's needs and pursuing one's dreams has often resulted in conflicts and coalitions, with some groups and individuals taking more than others and holding on to it with little regard for fairness or even basic decency. Children can clearly grasp these facts and begin to find out about the various structures and systems that make up contemporary society. They can be taught the skills of critical analysis and open debate to defend their own values and those of others...World studies as its name implies, allies itself with a broad definition of citizenship. The key concepts of 'duties, responsibilities and rights'; of 'justice, democracy, respect for rule of law'; of 'community, roles and relationships in a pluralist, democratic society' [NCC Curriculum Guidance Eight] are crucial for children to learn...

A world studies approach...equips students with the necessary intellectual, social and action skills.

(p. 6-7)

Suzanne applied these ideas to the communities within which the children in her class operate daily, namely family, neighbourhood and school. Through an education that attempts to model the values of justice, fairness and mutual responsibility, Suzanne argued, children can learn to recognise their commitment to these principles, and their responsibilities to the environment. This social studies/world studies process oriented approach is a radical departure from traditional environmental education as 'environmentalism' which essentially seeks to transmit from above environmentally 'good' attitudes and behaviours.

Suzanne's environment-related educational practice emphasised both the celebration of the wonders of nature and environmental concern through an issues-based approach. When the focus was environmental concern Suzanne's priority was to be positive, rather than 'doomsday oriented or fear generating' (Aldrich-Moodie and Kwong, 1997: 87).

Suzanne

My first concern is to be positive, not to be pessimistic, not to be a doom and gloom monger. I have seen in the past the energy and commitment of young children made ineffective, where there is an emphasis, an over emphasis on the problems - and so many problems, that the children come to believe that they cannot do anything about them.

However, for Suzanne, this 'social studies' tradition of teaching and learning has tended to lack a national and global dimension or any significant emphasis on development education. The tradition was very much about experiential and active learning, critical thinking, cooperative groupwork, values education, and social relationships in classrooms and school. Extending children's everyday experiences of social life and their immediate environment and their commitment to such values at national and global scales, through discussion and techniques of contrast and comparison, was an area of environment related provision that was not so well developed at Holly Hill.

At a very basic level, it is generally accepted (though not without constructive challenge, and I will return to this later) that the opportunity for teachers to contribute to their pupils education related to the environment and development is in terms of three core 'threads', 'principles' or 'approaches'. This three-component (prepositional) model (Scott and Reid, 1998: 215) of environmental education was first formalised and published in the UK School's Council *Project Environment* (1974). It has become commonplace to characterise these as:

- education *about* the environment which seeks to develop children's knowledge and understanding of the nature of the area under study
- education *in/through/from* the environment, which views the environment as a useful resource for learning
- education *for* the environment which puts the emphasis on children developing an informed concern for the environment; to 'develop attitudes and levels of understanding which lead to a personal environmental ethic; that is, to educate pupils so that their actions and influences on collective action will be positively for the benefit of the earthly environment' (Schools Council, 1974)

Education for the environment is viewed as having a more explicit agenda of values education and social change, driven by educational goals formulated to promote lifestyles compatible with a sustainable future (Lambert and Balderstone, 1999: 30). They quote John Fien who expressed the distinction thus:

Education about and through the environment are valuable only in so far as they are used to provide skills and knowledge to support the transformative intentions of education *for* the environment.

(1993b)

In more recent years, with worldwide acceptance of the need for sustainable development, increasingly education *for* the environment has been given more attention within the literature, and is being reconceptualised as education for sustainable development/education for sustainability. 'This trend parallels the call for movement from an empiricist to an ecological paradigm in education, and for a shift from positivist to socially critical approaches to teaching and research in the field (Palmer, 1998: 137). It has also involved attempts to overcome the local-global dichotomy, and to address the problem of a sense of powerlessness in society, in which there is an individualisation of cause and responsibility, and attempts to replace this with a sense of collective responsibility.

Using the three-component model of environmental education for analytical purposes, each approach is usually seen in some form of a more 'integrated whole' model of environmental education, where the three aspects are relatively balanced in terms of emphasis placed upon them. This of course, raises the key question of whether such an 'integrated model' is incompatible with the notion that there are three very distinct visions/versions of environmental education (as illustrated by John Fien above), each involving a specific emphasis on one or other of the 'about', 'in', and 'for' modes of learning. The concern for socially critical educationalists is that the 'integrated model' is seen as reflecting the 'traditional' goals of environmental education, and there are substantial philosophical and practical differences separating 'traditionalists' and those who seek to promote education *for* the environment or education for sustainability. As stated above I shall return to this issue below and in chapter 7.

Inextricably embedded within the three approaches of learning *about*, *from/through/in* and *for* the environment are three dimensions of the learning process or categorisations of learning objectives/outcomes, namely: knowledge and understanding [of], skills [in], and values and attitudes and

behaviour [conducive to]. An involvement or action dimension can also be recognised, this is sometimes more implicitly emphasised through skills [of decision-making and problem-solving etc], at other times it is expressed explicitly in terms of action *for* the environment. These dimensions have been referred to and elaborated upon in most documents that attempt to define the aims and objectives and content of environmental education. The focus of the majority of documents in more recent years has been the 'need to develop attitudes of care, curiosity and concern for the environment' (DES, 1988).

In terms of education *for* the environment, the work of David Uzzell (1999) is helpful, in offering a sharper profile of its concerns. As Soren Breiting and Finn Mogensen (1999) suggest, 'the success of environmental education is not only on efforts to increase its distribution. The future success for environmental education will increasingly depend on how well we are able to improve its quality and critical potential, not least through a sharper profile of environmental education' (p. 349). Underlying the idea of sharpening the profile of environmental education for Breiting and Mogensen is the proposal that not every educational activity related to the environment should be considered as part of environmental education. Environmental education is *not* mainly teaching about the environment. What should be in focus are the real environmental issues we have to face. (p. 349-50).

I consider Uzzell's ideas at some length. He argues that environmental education should focus around developing '*action competence*' and that much *activity* undertaken in the name of environmental education fails to provide a proper orientation for environmental education, namely real local environmental problems and solution finding. 'Environmental action competence may only be elaborated or allowed to function in the presence of a genuine problem facing a local community' (the principle of authenticity)' (p. 411). The concept 'action competence' has in recent years begun to play a central role in the pedagogical discussion of environmental education, especially in the European projects mentioned above. Increasingly, in some European countries 'the overall objective of environmental education is seen as development of the pupils' action competence' (Breiting and Mogensen, 1999: 350).

The principle of authenticity is central to the arguments of Uzzell and to the development of 'the school as social agent'. Uzzell (1999) describes authenticity,

By 'authenticity' I mean the search for the relationships between the school and the local community such that actions developed in schools are not surrogate or fantasy actions. Rather, the school participates as much as possible in the life of the local community. Authenticity is about school education getting as close as possible to the reality that awaits pupils after school. Authenticity is a crucial factor in considering educational content, local environmentally problems, barriers to change, the teacher role and environmental changes (Uzzell et al.,1994).

(p. 404)

He goes on to say:

Authenticity contrasts the real world with the surrogate world. The surrogate world is the world '*as if*'. The '*as if*' describes anything which is not a real issue in the local community in which the school is situated. The '*as if*' may even concern a case study

dealing with a real problem, but which does not aim at any effective action. The 'as if' is even more obvious in the case of fictional problems or problems discussed simply as technical phenomena.

(p. 404)

He offers an example,

If, for example, work is being undertaken on problems with fertiliser consumption in agriculture or investigating the amount of nitrate in the drinking water, this should be characterised as an *activity* rather than as an *action*, however, valuable it is educationally. An example of involving the action perspective in this sphere would be to investigate alternative approaches to achieving high agricultural productivity without chemical pollution and then engaging in discussions with farmers to try and persuade them to change their practises. In other words, an action must be targeted towards solutions of the problem.

(p. 404, author emphasis)

Activities, as described above, invariably, Uzzell argues focus 'on the symptoms of the problem, but rarely on the system that supports one form of economic or social behaviour compared with another' (p. 403). The object of environmental education, for example, should not just be to understand the chemical-biological causes of drinking water contamination, but more importantly the clash of interests in society which regards the polluted water as a problem. The problem lies in society not in the environment. He also suggests that a 'hands-on experience' or experiential experience 'is invariably contextualised within a natural rather than social scientific framework. We give children scientific information about environmental issues and provide them with experiential encounters with nature, but we do not give them social, cultural, economic and political knowledge and encounters' (p. 403).

Central to the notion of authenticity is the distinction between *activities* and *actions*. This is an important distinction. Uzzell argues that 'research by Fazio and Zanna (1981) has shown that direct experience of an attitude object leads to stronger attitudes compared with indirect experience. However, typically within environmental education experiences the child does not acquire a hands-on experience of the environmental problem itself, but a representation of the environmental issue' (p. 403), what he calls an 'experiential encounter' (p. 403). While I agree with Uzzell's emphasis here, I would question the implied assumption of a realist epistemology in actually trying to deal with the 'real' world environmental issues.

Uzzell emphasises strongly the need for environmental education to be developed within an 'action competence' framework. He offers an alternative perspective to the three component framework, which might see environmental education as potentially occupying three planes or phases: 'first, 'acquiring learning', second, 'developing concern' and, third, 'solution finding' (p. 401). At present he suggests 'environmental education probably achieves the first of these, perhaps it achieves the second and it rarely even aims to achieve the third in any way that is likely to be effective' (p. 401). Action-competent environmental education is a way of thinking about and taking people through each stage of problem identification and solution generation. The idea of action competence is to avoid the 'individualisation trap' common to much environmental education and to help grasp environmental problems as the structural and interdisciplinary problems they are (p. 401). 'Environmental education within an action competence

framework concerns itself with *action on* the social and natural environment rather than simply the acquisition of learning or opinion formation through *activities*. Action-competent environmental education aspires to reach the third phase of solution finding' (p. 402). 'The emphasis in this form of environmental education is to encourage within pupils the development of responsible, action-oriented strategies to solve real concrete problems within their local environment and thereby understand more fully not only how the natural but also the social, cultural, and political environments operate in practise' (p. 412). As Uzzell suggests with action competence environmental education must have a goal related to citizenship. Action competence is a very broad concept which forms part of civic competence (p. 403).

This action competence approach to environmental education is very different from mainstream environmental education. The action competence approach is related to developing a critical, reflective and participatory approach by which the developing pupil can develop strategies to deal with environmental problems. The mainstream approach of behaviour modification aims at prescribing certain of the pupils behaviour patterns which it is believed will contribute to solving environmental problems (Breting and Mogensen, 1999: 350).

It can be concluded that adopting an action competence approach to environmental education 'not only radically alters our understanding of the nature and scope of environmental education, but also changes our model of the child as learner. Furthermore, it changes markedly our appreciation of the relationship of the child and the school and the community' (Uzzell, 1999: 412).

The Organisation for Economic Co-operation and Development (OECD) *Environment and Schools Initiatives* (ENSI) programme is also a useful comparative framework for describing and analysing Suzanne's environment-related practice. The design of the ENSI project emphasises that how people live in relation to their environment is so important that the questions and issues it poses can only be properly addressed by people who bring certain qualities of thought and action to bear on them and that the best context for developing these through education are the ones in which they will need to be employed in adult life. From the point of view of the pupils themselves, the emphasis is upon dynamic rather than passive qualities, and they are involved in environmental issue at three levels: personal experience and emotional commitment, interdisciplinary learning and research (the generation of local knowledge), and socially important action (Posch, 1993).

The ENSI project as a whole has given rise to many worthwhile case studies and examples of innovative environment-related pedagogic practice. The most significant pedagogical aspects of the ENSI project, are all identifiable, to some extent, within the environment-related practice of Suzanne, both as she has described them, and as I identified them in my observations of her practice. Suzanne did not identify and explicate the attributes of her practice in quite the way the ENSI project is described below by Elliott (1991), but nonetheless these attributes, to an extent, are present. They are:

1. The notion of education for complexity - this focuses on the complexity and connectedness of relationships between human actions and the environment. These relationships cannot be grasped in terms of 'objective' representations (concepts/images) by scientific disciplines, because these representations are continuously shaped by human judgements of what is significant. Education for complexity goes beyond these representations to analyse the different values which underpin them.

This was strongly emphasised in Suzanne's practice both through the celebration of the wonders of nature and through issue-based enquiry. It was also inevitably progressive. The development of environmental awareness and environmental responsibility often involved the children examining and reflecting on their own personal values and actions in the environment in which they live, and those of others. The curriculum also integrated creative and symbolic modes of representing the children's experiences and valuing of the environment with more analytic modes of generating and acquiring such knowledge. The 'paradigm issue' intimated above was never explicitly articulated by Suzanne, but personal attitudes and values were an important concern of her environment-related practice.

2. Education as a process of developing capacities for intelligent action (practical knowledge) rather than one of transmitting discrete elements of knowledge disassociated from the practical purposes and values which underpin their construction.

The distinction between developing capabilities for intelligent action, that is assisting children to acquire the skills necessary for taking action, and of action itself, have already been pointed out and considered. Suffice is to say that Suzanne did devote considerable time to the development of such capabilities and the acquisition of a values base necessary for active participation, even though ultimately she provided very few, if any, opportunities for the children to become involved as active citizens. I think the importance of developing the capacities for intelligent action are well illustrated in terms of what Suzanne said about her idea of a minimum entitlement for young people in terms of environmental education within the National Curriculum.

Suzanne

My idea of the minimum entitlement for young people in terms of environmental education would be:

- to explore, study and investigate their immediate environment that then extends more widely
- develop their own awareness, ideas and feelings, their own spirituality, reflecting on and making personal decisions on environmental matters
- have opportunities to take positive action towards caring for their environment - locally and globally.

3. The transition from a transmission to an enquiry/project based pedagogy for environmental education. Here it is emphasised that simply involving young people in styles of learning that reflect other people's environmental values and beliefs doesn't develop their environmental understanding in a form which enhances their capacity for intelligent and responsible action in the environment. The transition to a project based approach is not complete until young people are able to make their projects their own.

This connects strongly with point 2 above and emphasises the empirical/project and ethical dimensions of environmental education identified below. Developing environmental awareness and responsibility as a pedagogical aim for Suzanne meant facilitating a learning process in the form of enquiry and discussion that did allow the pupils on occasion to make the enquiry their own. Such enquiry would usually start with a structure of learning activities to collect specific information and data, with an emphasis on 'getting the enquiry going', which then evolved into pupils considering whether other sources of information/data were necessary and the collection of such data. The pupils then used this information to facilitate further discussion and make informed decisions. From this point the pupils are given greater autonomy to develop the enquiry. Pupils were encouraged to express and develop their own views based on good reasons and supporting evidence. The children also considered through discussion, reflective and creative writing the possible dilemmas people might face when deciding on a course of action and the controversial issues these alternative solutions raise within the community.

An enquiry approach necessitates that the pupils are also taught the process skills necessary to support such learning, including asking key questions, observation and collecting appropriate data, description, interpretation and analysis, decision-making, and personal evaluation and judgement. That is the pupils should be involved in the processes needed to answer the questions rather than being provided with the answers by the teacher. Questions such as: 'what do I observe?', 'what do I feel?', 'how do others view it?', 'what is the background to this issue?', 'what processes are involved?' 'what are the alternative viewpoints and solutions?', 'which decision would I choose, and with what consequences?', 'should I take action?' were key or summary questions commonly used by Suzanne to give structure to the enquiries that the children carried out.

The enquiry process provides a framework within which Suzanne can organise learning 'pathways' in environmental education. This is now a more common approach to geography and environmental education within primary schools today. The impact of the enquiry process can be seen in the Geography National Curriculum (DfEE, 1995, DfEE/QCA, 1999) with the requirement that 'pupils should be given opportunities to undertake studies that focus on geographical questions. The enquiry process is also reflected in the Level Descriptions used to describe pupils' attainment in geography. The use of enquiry makes it more difficult to predetermine precise learning outcomes and the nature of the learning process is as important as any knowledge and understanding gained.

The use of open-ended teaching and learning strategies can, of course, have unpredicted outcomes. They may even 'go wrong' and yield very limited educational outcomes. Suzanne was both prepared to use such open-ended strategies, and was experienced and successful in their use. The same is true, of course, for more traditional teaching strategies, things can still go wrong, and very limited educational outcomes achieved.

4. Enquiry or project based pedagogy also overcomes the problem of environmental education being seen by some teachers as a vehicle for indoctrination - where young people are used as tools to achieve the ends of environmentalism or a particular environmentalism. Enquiry based pedagogy is pupil-centred (on their attitudes and values), project-based and knowledge generative which would not promote some dogmatic version of environmentalism.

Suzanne was very adamant that her goals and aims were always educational and that she was not promoting any particular form of environmentalism, even to the point of claiming to be 'apolitical'.

Suzanne

I suppose I do attempt to steer it, to direct it towards for the environment, but at school this is done in diverse ways. If we are telling young children that they have a choice, that they can make decisions about their own lives, then there can be no one prescribed curriculum for the environment. For the environment can mean many things.

I have not yet considered in any detail ideologies - I tend to be apolitical especially in my environmental education work. I don't think anyone, other teachers or parents would detect any leanings in either direction from the way I work with the children. Is this a weakness, a sign of non-commitment that I do not obviously fall into any category? Perhaps I do. I have emphasised already my commitment to the environment and to environmental education. But I am not aware of any labels, any categories I fit in to.

She went on to say:

Suzanne

But in the end you cannot avoid being political. This is the opposite of what I have said before! You cant avoid promoting the environment - what we are saying is that we value the environment, what makes a learning process for children educationally worthwhile is that it relates to things which matter to us in life. But that is not the same as promoting a specific

viewpoint, a specific stance on the environment -
a particular environmentalism.

Underpinning the ENSI framework is a theory of knowledge which differs from that which has traditionally underpinned the construction of school knowledge. This dynamic theory of knowledge is socially constructed, action orientated and situated in the experiences of everyday living. It sees knowledge developing through a process of active construction and reconstruction within specific contexts. I develop these ideas further in chapter 7 and 8.

To complicate matters further, subsumed within the environmental education curriculum are various 'elements' or 'components'. Again, these are referred to and expressed in different ways in the literature. Uzzell's distinction between activities and actions need to be kept in mind. Common elements are:

- the empirical or project element – this is concerned with those aspects of the environment that lend themselves to qualitative and quantitative forms of measurement and analysis. The main priority is to ensure that pupils have as many opportunities as possible of making direct contact with the environment through observation and by measuring, recording, interpreting and discussing what has been observed.
- the synoptic or complexity element – pupils need to be made aware of the complex and dynamic nature of the environment. The aim is to introduce pupils to the various interrelated components of the biosphere and help them realise the complexity of environment-development issues
- the political, economic, social, cultural and technological element – emphasises the importance of human thinking and action. The aim is to enable pupils to understand the interdependence of all life on the planet and the repercussions that their actions and decisions may have both now and in the future in terms of sustainability
- the aesthetic element – of environments, and the emotional sense of these environments
- the ethical and civic element – pupils are introduced to the idea of personal and collective responsibility for the environment. It focuses upon their own values, the values of others, and enables pupils to ask if the criteria of proposed actions are based on morally justifiable values.

This framework is a useful way of thinking about the different elements or components of teaching and learning in environmental education. They are useful in that they help to make the link between the three approaches to/components of environmental education and the dimensions of learning/categorisation of learning objectives/outcomes. In the end, however, what matters in terms of a 'socially critical' or 'social agent' model of education is whether these components in combination are turned into learning *activities* or *actions*. As Uzzell (1999) argues it is action competent environmental education which serves to distinguish it from traditional forms of environmental education (p. 402), and education *for* the environment/education for sustainability from other approaches.

In this way it can be seen that any form of education concerned to promote environmental change ('education for the environment', 'education for sustainability' 'education for sustainable development', 'the school as social agent' etc) involves pupils and teachers (and other individuals, groups and agencies within the local community) in a dynamic learning process which focuses on actual environmental problems and issues encountered in their own communities. Such an approach necessarily requires pupils and others to examine critically complex local-global value issues which form the basis of all people-environment interactions. The emphasis within this kind of environmental education is to encourage within pupils the development of responsible, action-oriented strategies to solve real issues/problems within their local environment and aspects of living, and thereby understand more fully how the natural, social, cultural and political environments operate in practise.

The above framework of 'good pedagogy' in environmental education can be used to analyse the environment-related practices of Suzanne. Inevitably individual contexts and commitments will warrant a greater or lesser emphasis being placed on each of the three principles or approaches within the 'integrated whole model' in terms of the emphasis on 'activities' or/and 'actions'. Suzanne certainly recognised that all three approaches are essential components of teaching and learning in environmental education. What is important here is the inter-relationship that exist between the three components.

Personal experiential and hands-on experiences through school-community projects, visits, and the process of issue-based enquiry *in* the local environment were some of the ways Suzanne planned for and facilitated pupil learning, and were probably the ways that Suzanne thought most important and certainly enjoyed the most. Skills of communication and co-operation, discussion, decision-making and problem-solving, and critical thinking were also of particular importance within this learner-centred approach. The concern is for both the spiritual/aesthetic experience of the environment itself, and through the project, visit or process of enquiry to enable the pupils to develop their knowledge and understanding of [*about*] and *for* the environment. When pupils are encouraged to explore their personal responses to and relationship *with-in* the environment, whether issue related or not, it is likely that this will help them to develop a personal caring ethic *for* the environment. I think this is the way that Suzanne understood her own environment-based practice. Learning this way 'on behalf of the environment' or 'with environments' is both an aesthetic/spiritual and intellectual experience and appreciation.

The acquisition of knowledge and understanding *about* the environment will enable pupils not just to hold a store of relevant concepts, facts and figures, but also to critically evaluate issues and situations in the light of informed understanding. 'Being informed' as Suzanne called it, would also encourage the appreciation and promotion of desired values and attitudes, especially if that knowledge is gained as a result of direct involvement with the environment and with local issues and problems that have a reference point in the learner's own lives.

The key point is that all three approaches/components (about, in, for) are represented, intertwined and mutually supportive within Suzanne's environment-related practice. A number of critical words or phrases can be introduced into the analysis of Suzanne's environment-related practice as a way of emphasising the linkages in the learning process outlined above - which transcend the simple three-fold framework. These are: '*being-with-in*', '*individual*' and '*collective*' *well being*, '*aesthetic/spiritual and intellectual appreciation*', '*care*' and '*responsible action*'. These are the words and phrases I came to use to describe how, I think, Suzanne understood and enacted her environment-related practices. They reflect the complexity of Suzanne's thinking and practices in environmental education and the limited utility of the three-fold framework for analytical purposes. They begin to offer a more nuanced appreciation of Suzanne's thinking and practice in environmental education.

The emphasis is on knowledge and understanding, the acquisition of skills and capabilities necessary for [future] participation or action, and attitude and values at an individual level. There is also an emphasis on collective experience both in the sense of learning activities (pupils working together and helping each other) and pupils sharing the experience of *being within* the environment. There is a stronger emphasis on the spiritual/aesthetic and [in a general sense] the intellectual, than on the social and political - context in which attitudes are formulated and actions undertaken. More emphasis could be placed on the social, cultural, economic and political, not necessarily as a means to bring about environmental change, desirable though this might be, but because it would lead to a better understanding of environmental action and change processes. This was a dimension of environmental education that Suzanne recognised, but was not so well developed in her practice. More of her environment-related education practice was contextualised within a 'natural' rather than a social scientific framework. But this is not to underscore the significance of *being within*, as I emphasise below and in chapter 8.

The distinction Uzzell (1999) makes between *actions* and *activities* is also pertinent. The concept of action competence provides a useful descriptive framework for thinking about and implementing environmental education programmes concerned to *effect* environmental change.

Environmental action can be grouped into two main categories, namely actions which directly contribute to solving the environmental problem that is being worked on (direct environmental actions) and actions whose purpose is to influence others to do something to contribute to solving the environmental problem in question (indirect environmental action). Indirect actions are concerned with 'people to people' relations, while direct actions refer to relations between people and their environment.

(Uzzell, 1999: 404)

If this is a specified aim of education, then education has to concern itself with *action* on the environment, both directly and indirectly, rather than simply be concerned with the acquisition of [socially critical] learning or opinion formation. Again, this was a dimension of environmental education that was recognised, but underdeveloped within Suzanne's environment-related educational practice. On two occasions over the two years, Suzanne's environment-related practice did attempt to go beyond the *activity*

or 'as if' stage, to effect action on a local environmental issue. The scope and purpose of this action are discussed in more detail in chapter 7.

While the environment-related educational provision at Holly Hill has the potential for what Uzzell describes as 'a higher degree of authenticity' and 'the development of action possibilities' it does not actively engage pupils in improving the environmental conditions which govern their lives. One way in which this could be facilitated is through Local Agenda 21 initiatives, though such initiatives, and indeed the whole concept of Local Agenda 21 in terms of promoting sustainable development have not gone uncriticised (e.g. Rist, 1997). The issue of the development of 'action possibilities' will be given greater consideration in chapter 7.

The concern for increased participation and the need for 'action competence' does, however, raise the question of how to prepare children for participation, for action competence. 'This is the state of readiness pupils need to develop in order to be able to participate meaningfully' (Holden and Clough, 1998: 18). This requires the teacher to provide a responsive context in which the level of the learner's existing participatory skills (all those mentioned above) and understanding of relevant concepts and ideas are both recognised and developed. As Holden and Clough suggest, 'a pupil who is action competent is one who can argue, can reflect critically, can relate her/his opinions and action to a values framework' (p. 18). This emphasises of course that participation *per se* does not lead to competent citizens, the capability of action competence must be developed to a certain extent before participation can be effective. This also suggests the idea of the scope of participation or the levels of participation, and the need for teachers to consider the level at which they are promoting and facilitating participation. *The Ladder of Participation* is a model Paul Hart has developed to differentiate between the various levels of participation which teachers and those in the community might offer to young people. He emphasises that it is not necessary that children should always operate at the highest level of participation; different levels are appropriate at different times, depending on the ability of the child and the situation. Thus at one level children become action competent through engaging in assisted participation, and this in turn provides them with the skills, knowledge and values framework for more extended participation at higher levels.

It is evident from this description that Suzanne saw one of her educational roles as helping to prepare children for the opportunities, responsibilities and experiences of adult life. Indeed, this is a requirement of the 1988 Education Reform Act (and now of course, of Citizenship Education at secondary level within Curriculum 2000). To exclude young people from participation and from the consultative process, is as Rudduck, Chaplain and Wallace (1995) argue, to contribute to the 'bracketing out of their voice and is founded upon an outdated view of childhood which fails to acknowledge children's capacity to reflect on issues affecting their lives' (p. 172). A second argument moves beyond discussion of the benefits to the child to recognise the benefits of education for participation to society. David Orr (1994) writes that through programmes of active citizenship, educational institutions can become 'potential leverage points for the transition to sustainability' (p. 84). 'If children are to be educated to participate, they will require a

range of skills, including social skills and skills of communication and judgement, and of course the opportunity to practise and develop these skills (Holden and Clough, 1998: 16). As Holden and Clough suggest, 'a curriculum which develops the skills of critical reflection and assists a values-based participation can begin to meet the needs of both children and society' (p. 16). These descriptions capture the particular form of participatory or citizenship education developed by Suzanne.

Noel Gough (1987) calls for a future [form of education] wherein individuals do not learn about, from/in or for the environments, rather they live 'with' them. Gough (1987) suggests that if we are to have a profoundly ecological understanding of education, attention must be shifted from the *objects* of environmental education, such as desired states of the environment or changed human attitudes, towards the *interactions* or *inter-relationships* that exist among people and environments (p. 64). For Gough the slogan of education *for* the environment is not much of an improvement on what for him are the inadequacies of 'about', 'in/from/through' and 'for' the environment. I think in many ways this describes very well the understanding that Suzanne had of environmental education and the kind of environmental education that Suzanne put into practice at Holly Hill, as shown in the statement below. The concern with the notion of prescription in terms of education *for* the environment is a common one and will be considered in chapter 7.

Suzanne

I recognise the three main approaches to environmental education within the existing provision at Holly Hill. Overall, in one way, there is probably a stronger emphasis on about and in/through rather than for. And I say in one way, because I do not think you can really separate the approaches as such, they are all part of the same environmental education process.

I suppose I do attempt to steer it, to direct it towards for the environment, but at school this is done in diverse ways. If we are telling young children that they have a choice, that they can make decisions about their own lives, then there can be no one prescribed curriculum for the environment. For the environment can mean many things.

I think that we have to convince children that the environment is worth their time, effort and consideration both as individuals and as part of a community. If the environment is given a high profile, its importance stressed, pointed out, then education for the environment stands a greater chance of being effective. Children need to see themselves as part of the environment. It should not be seen as something external, something beyond them where problems exist. If children are educated in this way, as part of the environment, where the environment is seen as a part of their everyday life experiences, then the

caring attitude I have emphasised before would come to the fore. And through this children will want to work on behalf of the environment. The more they feel a vital part of it, the more they understand the complexities.

They have begun to recognise how their behaviour, their actions, and that of their family are part of the issue. The issues are being internalised, made part of their lives. They are being seen differently. They are not just something to study - the 'we are doing it at school' mentality - but experienced by the children.

First-hand experiences of the environment were at the forefront of teaching and learning for Suzanne. The emphasis was with local environments to which primary children can most easily relate, feel part of and understand the interactions between people and environments. She wanted her pupils to begin to understand the complex *intellectual and aesthetic/spiritual* inter-relationships between people and environments. The various learning *activities with-in* the local environment were concerned to give her pupils direct experiences of such intellectual and aesthetic/spiritual interrelationships, rather than just learning *about* the environment or *for* the environment.

I think there were two different but inter-related aspects of this learning process *with-in* local environments. One was a direct focus on 'living with' or 'being within' - promoting caring and responsible inter-relationships between learners and environments - that is pupils learning through 'their senses' of touch, smell, sight, sound; through feelings and intuition - an 'education of the senses'; the other was an engagement with 'issues living with' or 'issues being within' - that is, active [*activities*] learning characterised by what Gough calls 'reality-centred projects', rather than a passive learning of transmitted existing knowledge and the abstraction of generic concepts (Gough, 1987: 63). In this way, Suzanne argued, the pupils would not see the relationship between themselves and the local environment as simply 'a problem' or 'an issue' to be resolved. The words of Baines (1994) are useful here:

but I have never had words which suggest that people perceive the relationship between themselves and their environment as anything but a problem...and environmental teachers as messengers with bad news.

(p. 27)

They would not see the environment in negative terms or be alienated from it. Instead, the children would learn to *care* and act in a *responsible manner* with the local environment.

Through this analysis, and in recognition of the dangers of characterising the complexities of educational practice by the use of summary bullet-points, Suzanne's environment-related educational practice seems to have shaped up as follows:

- developing the National Curriculum in ways which do not push environment-related aims and principles to the margins
- developing the National Curriculum in ways which do not simply assimilate environmental education to the traditional subject-based organisation of the curriculum, to the mode of information transfer and to passive learning this sometimes entails in primary schools
- a more open process oriented approach to teaching and learning and knowledge generation
- learning as a more personal transaction between teacher and pupils with the negotiation of goals and responsibilities on occasion
- learning as a transaction in a more unpredictable process
- environmental education rather than education for sustainable development or education for sustainability
- environmental education which aims to celebrate the wonders of nature and address environmental issues critically rather than a behavioural approach

more specifically it entails a combination of:

- less frequently concerned with information transfer and with instruction in the technical (informational) aspects of environments and environmental issues
- less frequently learning tasks structured by systematic knowledge, such as geography and science to focus on specific themes and issues
- more frequently concerned with engendering understanding about the values, meanings and significance embedded in the range of positions adopted in relation to environmental issues, and how meaningful learning can be connected to pre-existing knowledge
- more frequently inter-disciplinary enquiry-type *activities* into environmental issues/situations that concern local communities, in a form which enables children to become aware of and reflect on the complex interactions between the global and local factors operating on them
- environmental projects and visits to give children positive experiences within environments – to enable ‘being within’
- changing the culture of teaching and learning in ways which are concerned to develop the qualities of citizenship that enable children to accept responsibility for the environment and to collaborate with others
- fostering school-community collaboration to support environmental learning
- connection to school-LEA environmental education network – Trailbalzer
- a tension between the fact that while there was no significant movement towards a curricula for ‘sustainable development’ Suzanne was concerned to involve children in developing the ecological management of the school.

This description of Suzanne’s practice is her creative response to a series of policy formations during the first half of the 1990s. In this sense, policy is not something that is ‘done’ to people (Ball, 1997: 270).

Teachers do not 'implement' policy, 'policies pose problems to their subjects, problems that must be solved in context. Policies do not normally tell you what to do, they create circumstances in which the range of options available in deciding what to do is narrowed or changed or particular goals or outcomes are set. A response must still be put together, constructed in context, offset against or balanced by other expectations' (ibid.). All of this, as Ball suggests, involves creative social action of some kind. Thought and action will be localised and displays the 'ad hoc-ery' and messiness of opportunities and compromise. Such a description 'peoples' educational change with a view of the teacher as an intelligent social actant, rather than the 'practical expert' whose status, for Hargreaves and Woodhead, must rest on demonstrable competence.

The description, perhaps, also exemplifies what Peter Silcock (2001) has termed 'new progressivism'. Silcock is concerned that teachers' personal and professional beliefs are under threat because of ongoing outside [government directed] intervention. 'What is characteristic of child-centred beliefs is that their caring, humanitarian ethic is an engine of real power: it inspires teachers of young children with an emotional resource enabling them to continue with work which is, often, arduous and demotivating. In so far as the ideology continues to survive in schools, it will evolve, as it must, in ways which mutually invigorate both 'child-centredness' and the ongoing development of the National Curriculum' (p. 32). Silcock's 'new progressivism' embraces old aims. Yet, today its aims are more affected by social, moral, political, economic and environmental demands than was needed mid-century. This provides a context for understanding Suzanne's environment-related educational practice.

Suzanne's practice transgresses some of the traditional boundaries and tenets enshrined in educational systems: between subject specialisms; between knowledge producers and knowledge users; between 'global' and 'local' knowledge; between teaching and learning; between childhood dependency and adult responsibility; between 'formal' learning inside school and 'informal' learning in social, community and environment contexts. This description and practice is, in fact, part of 'an agenda for systemic reform, because it entails changes in the broader structures and functions of schooling which maintain and reinforce these boundaries' (John Elliott, 1999: 330-1). It is part of an agenda for systemic change which many academics concerned with environmental education seem to be arguing for (see e.g. Elliott, 1999; Posch, 1999; Uzzell, 1999). But at the end of the day, the idea of environmental education for any individual will be that which squares with their idea of 'education' and which is operational in their setting.

This account begins to 'flag up' the significance of the 'dual aims' of environmental education [educational and environmental] and is grounded in the kind of analysis of social and economic change provided by Beck and Giddens. The side effects of techno-scientific development on the quality of the environment have become as significant, if not more significant factors in the growth of social complexity as their impact on people's economic well-being. Moreover, since central governments are finding it increasingly difficult, in the face of this complexity, to engineer solutions to problems in society, they will need to devolve more responsibility to the citizenry at the local level. This is why the development of

'environmental education' ought to become a high priority educational aim. The current issues are very much related to the principle of education *'for'* the environment, which as a 'critical' or 'socially critical' form of environmental education differentiates itself (and 'education for sustainability'/'education for sustainable development') from mainstream environmental education, and most other curriculum areas. It requires teachers to revise their theories of teaching and learning. It is this specific focus that will be considered in more detail in the next chapter.

The comments of Noel Gough (1987) above are part of his argument for a major paradigm shift, that is the desirability of shifting from a materialistic and atomistic world view and scientific epistemological paradigm that dominates formal education, in the direction of an ecological worldview and epistemological paradigm for education. This will be given more consideration in chapter 7 and 8. His call for a future wherein individuals do not learn about, in/from or for environments, but live 'with them', is 'a foundation for educational inquiry [to] give us cause for optimism that we might someday learn to live, and live to learn, *with* environments (p. 50). For Gough this is grounded in a 'deep ecology' worldview, a sense of identification with one's environments:

Apart from being somewhat patronising and anthropocentric (who are we to say what is 'good for' the environment, and which environment is *'the'* environment', anyway), this slogan maintains the sorts of distinctions that tend to work against a deeply ecological world view – distinctions between subject and object, education and environment, learner and teacher.

(Gough, 1987: 50)

Whatever Suzanne's ecological world view/ethic was, I was never able to get her to articulate this [to me] in any detailed form. She did not identify what Palmer (1998, 1999) describes as 'significant life experiences', 'the relative importance of various categories of influence and formative experiences on the development of environmental educator's knowledge of and concern for the environment' (1999: 386). What she did say is presented in chapter 2, when I introduced Suzanne.

A key issue in this analysis is Suzanne's confidence. I think the research does show that Suzanne was a confident environment-related practitioner. She was confident in her knowledge about environmental education, in her co-ordinators role within the school and within the local authority in terms of trailblazer; in her ability to question her own environment-related practice and that of the school; in her ability to gain support from the other members of staff for environmental education and for its inclusion within the curriculum across both key stages and in its various forms. But in the absence of wider, more significant systemic change, teachers like Suzanne, at best operate at the margins of the system, confined in the main to isolated and individual commitment, or in the case at Holly Hill a small team of enthusiastic teachers, and connection via Suzanne with a wider network of committed teachers within the local authority through Trailblazer.

Perhaps most important of all in terms of this research project and its specific focus on pedagogy, is her ability to make decisions about the curriculum which cohered with her theories of teaching and learning.

There are clear consistencies between Suzanne's practical theories of teaching and learning and the recognised theories of environmental education.

Notes

1. The Ecologisation of Schools is an international OECD project which currently involves 10 countries. It is based on the 1986 Environment and Schools Initiative (ENSI) project.
2. The original 'participatory dimension' framework and Margaret Roberts adaptation of it are shown in Appendix 2.

Environment-related educational practice: moving to sustainable futures?

Those presuming to educate should not stand aloof from the decisions about how and whether life will be lived in the twenty first century. To do so would be to miss the Mount Everest issues on the historical topography of our age and condemn ourselves to irrelevance.

(Orr, 1994: 145)

It seems unnecessary today to labour the point that environmental concern is one – if not *the* – major concern facing humankind as a whole as we make a start on the new millennium.

(Bonnett, 2000: 593)

The question we must ask ourselves is to what extent does environmental education as it is currently taught and practised encourage and facilitate not only children's understanding of environmental issues, but also treats them as equal and responsible partners in and agents of socio-economic change?

(Uzzell, 1999: 398)

The action competence approach to environmental education...is considered to be much more coherent and consistent in its logic and more acceptable from a democratic point of view than the mainstream approach to environmental education. At the same time it also seems to be much more efficacious in seriously addressing the environmental challenges to the generation growing up without being fuel for their apathy or narcissism. It has been called 'the new generation of environmental education' because basically it is a new paradigm of environmental education.

(Breiting and Mogensen, 1999)

The problems with environmental education stem largely from its emphasis on *environmentalism*, rather than *education*. Until we embrace the educational aspects, we will fail to achieve environmental literacy. How have we ended up with misguided advocacy that now dominates educational programmes?

(Aldrich-Moodie and Kwong, 1997: 112)

Introduction

In chapter 6 I looked at three teachers articulations of environment-related educational practice, and in particular those of Suzanne. From the articulations of Suzanne I described in broad terms her environment-related educational practice, and located these articulations and practice within a wider discursive space of good pedagogy in environmental education. This provided a number of general insights into what it is like for a teacher of environmental education in the current context of policy development – or put another way, the relationship between developments at the level of policy rhetoric and those at the level of curriculum organisation and practice.

In this chapter I focus more specifically on a number of philosophical/theoretical and pedagogical issues. These issues revolve around an ecologically driven agenda for school change, within a shifting policy context of environmental concern in which environmental education is increasingly being formulated in terms of 'action competence'. I use the notion of 'professional dilemmas' within environmental education as an analytical framework and initially focus on three of the numerous environmental topics/teaching units that Suzanne and I 'team taught' over the two years of the research project. These 'examples of teaching and learning' attempt to further foreground the environment-related educational practice of Suzanne (aim

1) and to develop the analysis (aims 2 and 3) of 'good pedagogy' in environmental education. Again, I use extracts from a number of conversations that took place in the classroom during the lessons while 'team teaching', and extracts from 'extension' conversations that took place a short time later. The three topics used here were regarded by Suzanne as being the 'most successful', 'successful' and the 'least successful'.

Each of the teaching units involved two one-hour lessons a week over a two or three week period. In each case the class taught was Suzanne's own year 6 class, known as 'lapwing'. Lapwing was a year 6 class that over the last two years also included a small number of year 5 children, eight in 1994-95 and six in 1995-96. In each of these two years the class had 31 and 33 children respectively, with an almost equal number of girls and boys. The class had a relatively wide range of abilities, though none were designated as having special educational needs in 1994-95, four in 1995-96. These four children had both behavioural and learning difficulties.

While the three teaching units were planned and team taught for the purpose of the research project, at the same time they did replace what would have been planned and taught by Suzanne, and thus had to 'fit into' the overall year plan of national curriculum provision for geography and science. In this respect it is important to outline the approach at the time that the teachers of the school took towards planning national curriculum provision. This is how Suzanne wrote about it.

Suzanne

In order to cover the national curriculum programmes of study and the cross-curricular themes and dimensions, a subject-based topic or enquiry cycle has evolved. One subject or curriculum area is chosen as the basis for planning a topic and other subjects or parts of subjects and cross-curricular themes are drawn in where there is overlapping content or conceptual links. The conceptual links are an important part of the initial planning stage of a topic, requiring careful and creative consideration. There is agreement on a collection of concepts which underpin topic development and planning. 'The local environment', 'the local community' and 'the future' are three of the concepts which have a direct association with environmental education.

What seems essential for the primary phase is that first-hand experiences of the environment are at the forefront of teaching and learning in attempts to realise pupils individual potential and curiosity. The emphasis initially is with the local environment to which primary children can most easily relate, that they feel part of and can have an influence on. Coupled with this, the school continues to build on and emphasise the care and

affection that children have towards 'living things'.

The topics or teaching units used here are:

1. Energy use and conservation in school
2. Packaging and you as a consumer
3. What kind of sustainable future do you want for your local area?

Below is a brief outline of each.

Energy use and conservation in school

Suzanne received in school literature about the educational services offered by Groundwork. She decided that she could build a short science-environmental education teaching unit on energy around a Groundwork visit to school. This was the introductory handout the children were given before the start of the teaching unit and the visit by Groundwork.

In a few weeks time you are to have a visit from an organisation called Groundwork. The organisation is very interested in environmental issues. You already know quite a lot about such issues from your work in school and through trailblazer. Environmental issues are very topical at the moment. They are everywhere - in the daily papers, on the television, in the village and the proposal for a new supermarket, and your teachers are very interested in environmental issues. Environmental issues are not likely to go away. They will always be with us because they are so important.

You are very lucky to belong to a school that has such a good environment, a 'green school'. The school grounds are lovely, they are used for conservation and for your education. Much has been done with the school grounds. In the same way the school buildings themselves, both inside and outside, are a very important part of any green school. The inside of the school is your working environment, a place where you spend much of each day. Again much has been done to make this environment a pleasant place - spaces for plants and animals, and warm and friendly areas to work. Energy is a very important part of this inside environment.

The purpose of the visit of the Groundwork Organisation is to talk to you about, and work with you on the issue of saving energy.

Groundwork are working with Esso UK. Esso UK are a large multinational oil company. They are sponsoring a Young Energy Savers scheme (YES for short) - and this means you. It is a national project to make young people like yourself more aware of energy: its importance, the way it is used, the way it is very often wasted (this is a very important point) and the ways that energy can be saved or conserved.

The aim of Groundwork's visit to the school is to:

1. help the school save energy - to develop a successful school based energy saving programme
2. try and motivate you as a pupil of the school along with the teachers to learn about energy saving and energy efficiency
3. and for you to be involved in developing practical energy saving ideas.

Four lessons took place before the actual visit. The fifth lesson involved the actual visit of Groundwork, and finally a follow-up lesson.

The first two lessons involved introductory group and class discussions about energy, what the word meant and what energy was. This was supported by a range of stimulus material and a science video on energy. A simple definition was given to the pupils: energy is the power needed to make things move or do work. This was then connected to plants, animals, humans, machines and buildings through further class and group discussion and a written exercise. The overall connection to the sun was also made. The class then considered the idea of 'life without the sun' and 'life without electricity'. This was achieved using small group discussion and the writing of checklists, followed by creative story writing or a short drama/mime that had to emphasise 'what it would feel like'.

The third and fourth lessons considered the idea of 'where we get energy from' and 'running out of energy'. These two themes were considered in terms of making connections between the pupils themselves, their bodies and machines/buildings. That is, their need for food and food production and the use of electricity to power machines/buildings and where electricity comes from. Finally, rates of energy use were considered using simple statistics and predictions made about the problem of fossil fuels running out. The connection between burning fossil fuels and atmospheric pollution was also made.

The fifth lesson (all day) involved a school building audit devised by Groundwork to generate information specifically for their use when visiting the school in the afternoon. The afternoon session involved a talk to the children by a Groundwork educational representative and consideration of the school buildings audit. The audit focused on heat (hot and cold) and lighting (light and dark). The sixth lesson, after the visit by groundwork involved the children in writing a report for submission to the Headteacher and governing body.

Packaging and you as a consumer

This issue-based enquiry involved five lessons. The initial focus of this topic was the problem of packaging: the amount of packaging, whether it was necessary and the issue of reuse and recycling, and of litter. However, the aim was to widen the consideration of this issue, more generally, to the problem of consumerism. Here the concern was with contemporary consumer habits and the notion of responsible consumerism.

For the first lesson the children brought in examples of different types of packaging and discussion focused on the need for packaging and the problems it caused. Hygiene, freshness and food perishability as well as transport considerations, public information/advertising, were identified as important factors when considering the need for packaging. The children then worked in pairs and carried out a survey of the types of packaging available. Consumer items were identified along with the different types of packaging used and what the packaging was made from. This led on to a class discussion about 'over-packaging' of many consumer goods and the reasons for this. Environmental problems resulting from the issue of packaging were then briefly identified and considered. The final activity involved the children, in pairs, deciding on a set of rules for packaging with a view to reducing the amount of packaging and the problem of what to do with it.

The second lesson involved the children working in small groups to devise a consumer questionnaire about packaging and its problems, their general consumer behaviour, and whether it was connected to the problem of litter in the area around the superstore, for use in the following lesson. Each group contributed to the final class version of the questionnaire. Environmental problems resulting from the problem of packaging were also revisited. The third lesson involved a survey of consumer attitudes towards packaging and the problem of litter using the local superstore as a venue. The visit also involved the children meeting the environmental spokesperson for the company and a presentation about their environmental policy in general, changing consumer habits, the problem of litter, and the environmental education activities that the company supported. The fourth lesson was a follow-up lesson, involving the analysis of the data and then group and a class discussion on the results and their implications. The final lesson involved the children in writing a report of their findings and offering recommendations about packaging and the litter problem to submit to the local superstore and to their parents: what you can do to help: a set of rules about packaging and disposing of litter. The report was based around the idea of: refuse, reuse, recycle and throw away.

What kind of sustainable future do you want for your local area?

This project-based enquiry was taught as part of a WWF UK nation-wide competition for schools in 1995, entitled *Mapping The Future: a vision of sustainable communities in the year 2012*. The competition was part of a joint celebration of World Environment Day by the Department of the Environment and WWF UK. It was also part of WWF UK's Curriculum Management Award Scheme. The scheme was an attempt by WWF UK to support schools and teachers in establishing a well-planned programme of environmental education. According to the scheme's promotion literature 'it is increasingly clear to WWF that faced with the mounting pressures of fulfilling the statutory requirements of the National Curriculum, many schools and teachers are hampered by a lack of time and resources to do so'. With this in mind WWF wanted to facilitate schools in looking afresh at their environmental education provision across the curriculum and the school as a whole. To support this WWF were offering financial (£6000) and consultancy support to schools, based on setting and meeting targets.

The competition itself involved a category for primary and secondary schools. The primary category required schools to produce a wall display and the following criteria were used to judge each submission:

- creativity of the vision presented
- the environmental sustainability of the vision presented
- the overall impact of the display.

The wall display, which had to be of a certain size (112 x 120 cms) could be made up of any number of individual items and schools were free to submit as many entries as they wished. We decided on one submission created by the whole class.

The class was particularly excited by this competition and Suzanne and myself devoted half a morning to discussing with the children possible involvement and what sort of wall display they would like to create. Once the presentational issues had been discussed e.g. whether to portray one overall story/theme or several, whether to use a chronological sequence, materials, colour etc, the discussion focused on the idea of sustainable communities. Initially this was approached through considering the idea of 'my ideal place'. In two groups we explored with the children what these ideas might mean. We also introduced the idea of continuity and change, better/worse, beneficial/harmful and tried to relate these to particular groups within the local community and to different areas of the school and its immediate area. Each group reported back, ideas were summarised and the morning session finished with the children recording their own ideas in written or other form. Over the next two weeks using English, art and geography lessons we introduced a series of stimulus materials (pictures, photographs, short extracts etc) about other people's ideas of 'ideal places' and introduced environmental considerations into the work. One lesson was devoted to a comparison of four different future scenarios each with an emphasis on the environment and how they felt about the prospect of each kind of future. The concern here was not just how they felt, but how others might feel, and how 'the environment might feel'. They were asked to rank the scenarios in order of preference.

Each child or if they preferred small group then worked on presenting their own scenario. They were reminded of several key points to consider:

- how people would live with care for the environment
- how people would live with each other
- how the needs of the different groups within the community would be met, such as the young, the old, disabled, women, men, religious and ethnic needs
- the need to work
- schools
- transport and communications
- leisure/pleasure

- use of technology.

The outcome was an excellent wall display by Lapwing class incorporating all the children's work and entry into the competition. The final outcome was that the class won the primary competition. Suzanne and a group of Lapwing children went down to London, met WWF officials and Jonathan Porritt, got themselves into the local paper, the wall display was mounted in the school entrance hall and then the local library, and the school received £6000.

threads of a complex practice

These three teaching units further help to characterise the environment-related practice of Suzanne. Using the framework of 'good pedagogy' in environmental education described in chapter 6, we can see the way in which Suzanne 'puts together' and deploys the three-component model.

Suzanne

approaches to environmental education

I recognise the three main approaches to environmental education within the existing provision at Holly Hill. Overall, in one way, there is probably a stronger emphasis on about and in/through rather than for. And I say in one way, because I do not think you can really separate the approaches as such, they are all part of the same environmental education process - the big difference is one of emphasis.

I suppose I do attempt to steer it, to direct it towards for the environment, but at school this is done in diverse ways. If we are telling young children that they have a choice, that they can make decisions about their own lives, then there can be no one prescribed curriculum for the environment. For the environment can mean many things.

The three teaching units consisted of a fairly conventional topic on energy and school energy conservation, an issue-based enquiry focused on an actual issue in the local community (packaging and the problem of litter) and the third was a project-based enquiry (local futures). All three teaching units were planned to be issue-based and the emphasis was on education for the environment and sustainability. The three units all adopt a learner-centred approach, involve group work and pupil co-operation, pupil and teacher-pupil open discussion, decision-making, problem solving, skills of communication and a concern for participation, autonomy and critical thinking.

The energy unit, while in a sense based on a real issue: energy conservation in school, did not specifically involve the children in a consideration of a value issue encountered in their own community. The audit did superficially require the children to reflect on the consequences of their own and other people's values and

behaviours, but without any consideration of different interests in a social, cultural, economic or a political sense – indeed, the teaching unit was somewhat devoid of consideration of different values and action. Through the unit the children learnt about energy and energy conservation, were provided with an experiential encounter of their work environment through an energy audit, and had an opportunity to ‘have an effect’ on the energy management of the school by submitting a report to the Headteacher and Chair of Governors. The children’s interest in energy conservation was at least matched by the opportunity to be involved within ‘democratic processes’ of influence. The unit did not give the children the opportunity to re-consider or even consider their own positions on this particular form of energy conservation. There was no opportunity for the children to develop social and political insights into energy use or sustainability, nor to express an understanding about values and action. The point being made is that whilst a study of energy conservation is good in some respects, especially when it connects children to school policy on energy use and involvement of children in school energy management, this sort of uncritical approach might inadvertently lead to undesirable learning outcomes, such as the unquestioned assumption by children that individual and institutional responsibility for energy conservation is the politically correct choice. There was no opportunity for the children to consider alternative choices, to recognise the political ‘trade-offs’ that are involved in any environmental policy, energy conservation, or otherwise. A teaching unit concerned with an actual issue, whether energy conservation or something more controversial, should enable children to recognise and understand the alternative choices and the advantages and disadvantages that each choice entails. This teaching unit tended to close off rather than open up the issue; in this sense its purpose and scope is, I think, educationally questionable.

The project-based enquiry (local sustainable futures) perhaps, more than anything, was a ‘synthesising activity’ where the children had the opportunity to put together their ideas and understandings of the environment, human needs and sustainability (that had been learnt over the years). It was an ‘as if’ (Uzzell, 1999) project-based enquiry, concerned with a real issue – the children’s future - ‘living in a sustainable community in the year 2012’, but which did not aim at any effective action. The project-enquiry developed the children’s knowledge base of environmental-related issues in the local area, encouraged the children to reflect on the consequences of their own and other people’s values and stimulated their intention to take action for the environment. The children found ‘local futures’ very enjoyable, and the commitment level was high.

Preparing children for ‘the future’ is a broad aim of the 1988 Education Reform Act, and geography has a record of addressing the future, and more recently the work of, for example, David Hicks (1994) and David Hicks and Cathie Holden (1995) has been influential. Numerous strategies are now being promoted to give a futures dimension to the National Curriculum. Whether the emphasis is on possible, probable, preferable futures (Fisher, 1998: 80) or thinking about, envisioning and choosing the future (Lambert and Balderstone, 2000: 370-1) this is of considerable relevance to the theme of the environment and in particular, environmental sustainability. Tony Fisher (1998) suggests that education for sustainability ‘can be seen as rational explorations of the future of humankind and nature in an interdependent world’ (p. 81).

This new field draws together aspects of environmental education, development education, peace education, world studies, and human rights education in a framework informed by a critical approach to the theory and practice of education. It...examines the

way in which education can contribute to a future in which the people of the Earth can live harmoniously with one another and with the small planet which is home.

(Fisher, 1998: 81)

This of course has consequences not only for the curriculum but also for the practices of the school. 'Pupils learning is likely to be most effective where curriculum is matched by the school's own environmental practices' (SCAA, 1996: 5).

Environmental education concerns itself with philosophical as well as empirical questions. While environmental education must certainly concern itself with investigating the empirical questions posed in all environmental issues, the distinctive feature of environmental education as a form of enquiry is that it also recognises and engages with the political, social, cultural, ethical and religious implications of environmental change. The three teaching units: 'energy use and conservation in school', 'packaging and you as a consumer', and 'what kind of future do you want for your local area?' all had important empirical questions that had to be addressed. For example in the energy unit these included the measurement of energy use, rates of energy use, the relationship between energy resource use and depletion, as well as the effects of energy use on the atmosphere. In the packaging unit there were empirical questions based round the measurement of food perishability and the 'best' materials to preserve freshness and hygiene. Standards of freshness and hygiene also involve empirical questions. Yet the crux of these issues is not ultimately resolvable through a process of answering these empirical questions. Ultimately, each issue turns on the political, social, cultural, ethical, even religious questions of, for example, whether we *ought* to use a particular form of energy for heating and electricity generation (lighting), and whether human [our] needs are more important than natural resource conservation and technology controlled pollution of the atmosphere; or whether we *ought* to accept the use of particular forms of packaging in order to enable 'long term' food preservation in the interest of human convenience. It is now generally accepted that environmental education programmes fall short if they do not address these political, social, cultural, ethical and religious contexts within which the energy and packaging problems occur. And political, social, cultural and ethical questions concerning environmental issues can only be addressed and resolved through a process of extended and often on-going debate.

Through the activities of the packaging enquiry the pupils were more directly involved in an actual issue, though it was an 'as if' enquiry. It gave 'hands-on' experience in the local community, and gave the children the opportunity to consider public attitudes and values and how this affects behaviour. The focus was also turned on themselves/their families. Through the enquiry the children learnt about the reasons for packaging, food perishability and associated transport issues, as well as the importance of public health information and guidance. There were arguments and counter-arguments to consider, and the children did begin to develop social and political insights into the issue of packaging and this was connected to

consumer perception and behaviour. It helped to develop the children's knowledge and understanding of value issues encountered in their own community, and encouraged the children to reflect on the consequences of their own and other people's values and behaviours. They also recognised that solving local problems is a complex process. The children had an opportunity to 'have an effect' on a packaging policy at the local superstore and of bringing about improvements in the local community through the prevention of litter. The enquiry was activity based rather than action based, because the children addressed their learning activities to the local community in an attempt to work on and influence conditions – they were not involved in direct action on the local environment. However, this is not to undermine the educational value of the enquiry. Children have to be taught to participate, they have to learn the skills, knowledge and values necessary for action competence. In this sense, the enquiry can be seen as a step towards participation and action competence. Of course, education for values-based participation also requires genuine participation in school and the community.

The idea of the significance of the home-school link, and children acting as catalysts for change in the home/the family is also worthy of consideration.

Suzanne

If we take the packaging topic that we worked on together, this highlighted some of the problems teachers have to address. The topic was a microcosm of a much larger practical teaching issue. Over the years I have witnessed that many children in Lapwing class have had a very simple and naive, but potentially very harmful attitude towards 'things', to resources, and by implication to the environment; basically things are produced, we use them, and we throw them away.

Whether this is the attractive wrapping around a new toy, food, clothes or even a Brent Spar - we have a tendency to see things in the short term. Very often commodities are seen in terms of their usefulness; to us; here and now - and no more. But much more thought should be given to this simple linear relationship which society helps to propagate. Education has to break this simple linear relationship.

Children's learning has to take a critical stance – they have to begin to realise the complexity and interconnectedness of their understanding and actions. But it has to be done at their level, it has to be a part of their everyday life experience. Encouraging the children to 'take the issues home', connecting school, home and the local community was certainly an effective way. They have begun to recognise how their behaviour, their actions, and that of their family are part of

the issue. The issues are being internalised, made part of their lives. They are being seen differently. They are not just something to study - the 'we are doing it at school' mentality - but experienced by the children.

I do think the home-school connection is a very important connection to make in environmental education. Young children gain a great deal of confidence in discussing things - 'issues' with their parents, and enjoy telling their parents how they should behave or act. This confidence was also witnessed when Lapwing class visited the university. They very much enjoyed talking to the students about the work they had been doing, and working with the students. This was probably an example of a critical learning incident for many of the children - an experience that will stay with them, and maybe shape their future attitudes and behaviour.

Sadly, not that all families have the time, opportunity or even willingness and interest to listen to what children have to say. Home-school links can only be really effective when parents are committed too - to their child's education. But for children to have the opportunity at home to freely express themselves, to offer opinions and viewpoints, is for me, an important part of education for the environment.

In my teaching I have been concerned to move out from the individual to the school, to the family and the community. What is important is to emphasise to children how their actions affect others.

Of course we do not know the long-term effects of this type of learning. We have witnessed new and positive attitudes and actions by the children over the years, but that learning has to become embedded in their life experiences in a way that becomes enduring. Of course, in one sense, we will never know if any of that learning and commitment has endured.

This idea, which in principle is a very good idea, is commonly recommended in the literature, though as Suzanne suggests the effects are not really known. In 1992, a four nation research study (Uzzell *et al.*, 1994) examined whether children, in conjunction with schools, can act as catalysts of environmental change in the home [and the community]. As Uzzell (1999) reports, 'the idea behind this work was simple: if children could be given environmental education at school and encouraged to disseminate it at home [and in the community], this would be an extremely effective way of influencing and educating parents to sustainable environmental behaviours' (p. 407). The research evidence found that 'this did not occur, and concluded that for catalytic effects to occur it is necessary to work simultaneously with the child and the

parent(s) in order to support both the child *and* parents in the catalytic process (p. 407, original emphasis). School-home links have the potential to make an effective contribution to environmental education, though there is always likely to be a problem with judging its effectiveness. The situation at home and parental attitudes can play a crucial role in determining whether the child will [at least] be given the opportunity to act in a catalytic role, and to freely express themselves, and offer opinions and viewpoints.

professional dilemmas

The 'new generation' discourses on 'good pedagogy' within environmental education necessarily involve the teacher in a range of professional dilemmas associated with the educational implications of environmental concern, because they destabilise some of the enduring 'rational' boundaries and tenets of schooling. The 'new generation' discourses on 'good pedagogy' within environmental education can be located within a wider discursive space at the turn of the third millennium, which points to enormous changes taking place regarding how people learn 'as we move into the 'information age'' (Paechter *et al.*, 2001: 1). 'Learning is no longer regarded as something that happens in specifically educational institutions. We not only learn throughout our lives, but in a variety of places and spaces. These changes highlight the previously veiled relationship between learning, space and identity' (*ibid.*). The moves towards seeing learning as taking place outside as well as within the taken for granted spaces of the classroom bring to our attention not just the question of how learning is affected by the specific features of particular spaces and places, but also how learners as embodied individuals are changed by their experiences within these spaces/places.

This wider discursive space has also included social constructionist approaches to child-development and learning which in the main derive from the work of Vygotsky (1962, 1978). These approaches stress culture and the social context as the basis for learning and recognise children as active in the construction of their own knowledge and reality. Language is the medium through which children construct meaning. Academics and teachers have developed the discourse of social constructionism to facilitate dealing with social and controversial issues in the classroom. Social constructionism has required pedagogies based on active engagement of teachers and learner and changes in their relationship. There is a commitment to negotiation, shared decision-making, developing empathy, co-operative learning, to making learning explicit - that is learning to learn, and rejecting the idea that children cannot cope with controversy or with social issues, including 'the environment'.

Societal anxiety over environmental and development matters has given education for sustainable development or education for sustainability an increasingly high profile.

For the survival of the World and its people teachers must do far more than just teach about global issues. We must find ways to change hearts and minds. ... Teachers hold the responsibility for educating their participants to work for future change that will help to create a better world for all. Together we must work towards a more ecologically sustainable and socially just society, locally, nationally and globally.

(Calder and Smith, 1993: 2.1)

Education for Sustainability or Education for Sustainable Development is not new. As the Panel for Sustainable Development Education's (DfEE/QCA, 1998) contribution to the National Curriculum Review stated:

It has its roots in environmental education, which has evolved since the 1960s, and in development education, which first emerged in the 1970s, and also links with a number of related approaches to education which stress relevance to personal, social, economic and environmental change. In the past decade these approaches have increasingly found commonality under the label 'education for sustainable development' and there is a strengthening consensus about the meaning and implications of this approach for education as a whole.

(p. 28)

As part of the consultation process of the National Curriculum Review the Geographical Association (1999) produced its Geography in the curriculum position statement. The statement argues that geography makes both a distinctive and a wider contribution to the curriculum, and that geography is an essential component in preparing young people for life in the 21st century. Indeed, the Geographical Association claims, as the pace of change quickens, communications get faster and challenges to the environment multiply, a knowledge and understanding of geography is more vital than ever (p.57). The distinctive contribution of geography is in helping young learners to understand relationships between people, places and environments over time, and to interpret the past, understand the present and plan for the future. In terms of Geography's wider contribution, an important connection is made with Citizenship and sustainable development. Significantly, over the years both the distinctive and wider contribution of geography have increasingly emphasised the importance of *education for participation* within a rapidly changing world and notions of pupil empowerment/enablement, voice and envisioning have a high profile. If we accept these arguments, then, from an environmental education perspective, the question of how we begin to move towards more sustainable societies is a significant one.

The emphasis on participation and the movement towards more sustainable societies usually falls short of *direct action* - on the environment. However, many environmental educators are now exploring the ways in which environmental concern should impact on educational practice. The success of environmental education is not only dependent on the efforts to increase its distribution, Breiting and Mogensen (1999) argue, the future success for environmental education will increasingly depend on how well we are able as educators to improve its quality and critical potential in terms of dealing with the environmental issues we have to face (p. 349-50). There is now increasing attention being given to an action competence approach to environmental education, what has been called 'the new generation of environmental education' (Breiting and Mogensen, 1999). As Breiting and Mogensen (1999) suggest, this gives environmental education or education for the environment a sharper profile, it is 'considered to be much more coherent and consistent in its logic and more acceptable from a democratic point of view than the mainstream approach to environmental education' (p. 351). What lies at the heart of environmental concern and the 'new generation' environmental education is the need for action and the development of action-competence within pupils.

Underlying the idea of sharpening the profile of environmental education is the premise that not every educational activity related to the environment should be considered a part of environmental education. Environmental education is *not* mainly teaching about the environment. What should be the focus are the environmental issues...and the possibilities of overcoming and preventing them in the future.

(Breiting and Mogensen, 1999: 349)

I suggested in chapter 6 that aspects of Suzanne's environment-related educational practice transgresses some of the traditional boundaries and tenets enshrined in educational systems, and that such professional dilemmas were present in her practice. There are four strong underlying themes in this 'new generation' environmental education:

1. the need for learners and teachers to act on 'real' or concrete environmental problems or issues
2. encountered in the community at the local level
3. with other individuals, groups and agencies within the community
4. because there are so many unknowns, teachers/learners and others must have the autonomy to identify and decide issues in the light of local contingent circumstances.

Central to learning is the notion of knowledge as 'action competence' – 'action competence at a basic level is a way of thinking about and taking people through each stage of problem identification and solution generation' (Uzzell, 1999: 401). However, as Uzzell points out, it is much more besides, 'action competence concerns itself with action on the social and natural environment rather than simply the acquisition of learning or opinion formation...learning will involve social and political implications as opinions are transformed into values, then decisions, and, finally, actions' (p. 402). To put it succinctly as Bonnett (2000) does, 'being effective in affecting things in the real world' (p. 597). Crucially, this involves not just factual and theoretical knowledge, but the understanding, capabilities and values necessary to working communally to bring about change.

An adequate educational response to environmental concern requires, it is suggested, the educational development of pupils who are able to participate in shaping the social and economic conditions of their existence in society, and transforming the ways in which the school as an organisation interacts with and impacts on the environment and local community. The ENSI project, an ongoing international programme, is one example of the way educators are exploring environmental concern and the ways in which it should impact on educational practice. 'It is evident that those involved in this project see the impact as being radical in a range of ways which, taken together, would certainly transform the nature of schooling as it is commonly practised' (Bonnett, 2000: 596). Peter Posch (1999) identifies the kinds of 'professional dilemmas' facing teachers, in a shift in priorities from:

The prevalence of learning tasks structured by systematic knowledge to a focus on complex, real life unstructured situations which raise controversial issues; from an orientation towards individual subjects to interdisciplinary inquiry; and from passive learning of facts, rules and principles to the active generation of knowledge by pupil and teachers in the local contexts of action, to a pro-active shaping of the environment, to

promoting a critical reflective attitude towards given stocks of knowledge; from top-down communication of learning requirements to active participation of pupils in negotiating the conditions of learning.

(p. 342)

In the desire to transgress old boundaries and roles, its repositioning of actants and institutions in the generation, transmission and application of knowledge, the new wave environmental education and curriculum projects such as ENSI raise fundamental issues about the nature of schooling, learning and education knowledge itself.

Resnick (1987) similarly cites evidence that educational institutions are not contributing in a direct and obvious way to experiences outside, but also that knowledge acquired from outside schools is not always used to support learning inside, and conversely that knowledge learnt within schools is not always used outside. She has contrasted learning in schools with everyday learning and argues that learning in the classroom needs to be more like learning outside the educational institution. She suggests that learning in institutions:

- is decontextualised
- tends to be individualistic
- requires symbolic thinking
- is assessed by others.

Resnick compares this with everyday learning, which:

- involves general skills and knowledge
- has a 'real' context
- is co-operative/shared
- engages directly with objects, situations and people
- involves situation-specific skills and knowledge
- is self-assessed.

Posch identifies the 'rational' tenets that are increasingly being put into question by the 'new generation' environmental education:

- formal school-based learning
- predominance of systematic static and 'factual' knowledge
- disciplinary specialisation
- transmission-mode of teaching and learning
- top-down authority and communication.

He emphasises that curriculum is usually understood as a programme of study aimed at the acquisition of predefined knowledge structures which are largely derived from the academic disciplines. The truth of such predefined knowledge is determined through the application of standards said to be inherent in the academic disciplines. Such curriculum are designed to support a transmission mode of teaching which reinforces the retention of the systematic character of knowledge which distinguishes between facts and values, and its reconstruction by the student, and involves a form of communication that establishes the teacher's control over the content and process of learning. The ability to retain predefined knowledge has been used as the standard by which to judge the success of education.

This 'rational' approach to curriculum and pedagogy is a reductionist one, in which complexity and subjectivity is something to avoid. Posch (1993) claims that 'the prevalent cultures of teaching and learning are still attuned to a relatively static society, in which the necessity of knowledge, competences and values are predefined, stored in curricula tests and accredited text books' (p. 157). He argues that the future culture of teaching and learning will need to 'comprise contraries' to achieve a better balance between static and dynamic elements, which is necessary if schools are 'to find answers to the social changes presently occurring' (p. 157). The strengths of pre-specified frameworks, which include giving educational processes a focus and sense of direction, will need to be retained, while constructing them in a form which supports and leaves space for dynamic elements within the pedagogy, and makes them much less of a straight-jacket for teachers.

It is clear that what is being stressed here is the need for a curriculum framework with a greater focus on educational processes beyond that of their instrumental significance for the acquisition of pre-standardised bodies of static knowledge. The significance of the shift towards a process model of the curriculum in recent years 'is that it opens up new possibilities for integrating systemic approaches to educational change at the policy level with a concern to support teachers and schools in meeting the challenges of social change' (Elliott, 1994: 133). 'What the shift to a greater emphasis on process rather than content and outcomes implies is the construction of a different kind of framework based on a different model of curriculum, a framework which both 'structures' teaching and learning and supports them as dynamic processes open to being shaped by teachers and students' (*ibid.*).

I think that it is clear from the descriptions of Suzanne's practice that she was constructing a theoretical framework and a pedagogy which were creating a balance between: 'traditional structure' and 'the desire for openness', 'national curriculum prescription' and 'teacher discretion', 'formal learning inside schools' and 'real-life community contexts', 'teacher responsibility' and 'pupil autonomy', 'knowledge producers or makers' and 'knowledge users or takers', and 'static' and 'dynamic' qualities in children. The significance of this shift towards a greater focus on *constructive* process, that is illustrated in aspects of the environment-related educational practice of Suzanne, is that it does open up new possibilities for Suzanne to meet the challenges of social change. This relates to Moscovici's (1976) genetic model of social influence, the basic premise of which (as emphasised in chapter 6) is that knowledge is not given but

socially constructed. The educational process is not a static one of meaning *taking* but a dynamic [constructive] one of meaning *making*. The genetic model suggests that all social groups, including children, have the potential to be agents of social and environmental influence and change. The design of ENSI's curriculum framework was influenced by Lawrence Stenhouse's (1975) articulation of a 'process model' of curriculum design as an alternative to an 'objectives model'. Elliott (1994) and Posch (1993) argue that such a theoretical framework and pedagogy is a necessary condition for teachers in beginning to meet the educational challenges social change is increasingly posing. As is a curriculum framework based on a process model a necessary condition of any systemic approach to curriculum change which is serious about helping teachers and schools meet the challenges of social change; challenges that in part stem from an increasing consciousness on the part of citizens that they live in a 'risk society', where the consequences of techno-scientific developments are ambiguous. Posch (1993) suggests that public confidence in scientific knowledge will depend not so much on the traditional rules and methods of data gathering and analysis scientists employ to verify its content, but on a social process which involves citizens in determining what constitutes socially worthwhile knowledge and enables them to exercise control over the scientific production of risks in their well-being (p. 156).

ENSI's dynamic theory of knowledge, implicit in its use of Stenhouse's process model of curriculum design, has its origins in a cluster of ideas associated with the twentieth-century American pragmatists, Pearce, James and Dewey. I do not oppose the spirit of the pragmatist analysis, 'the emphasis on the immediacy of practical judgement and decision-making, and immediacy which stems from the need to respond to problems and issues as they arise in the practical experience of living' (Elliott, 1994: 140).

The 'new generation' environmental education, based on an action competence approach raises the question of the relevance of the three-component model of environmental education. In chapter 6 I asked whether the notion of an 'integrated' three-component model of environmental education was compatible with the fact that there are three very distinct visions/versions of environmental education, each involving a specific emphasis on one or other of the 'about', 'in', and 'for' modes of learning. As I suggested the concern is that the 'integrated model' is seen as reflecting the 'traditional' goals of environmental education, and there are substantial philosophical and practical differences separating 'traditionalists' and those 'socially critical' educators who seek to promote education '*for*' the environment or education for sustainability. Commonly the 'traditional' goals of education can be subdivided into 'technical' or 'conservative' and 'interpretive/hermeneutic' or 'liberal-progressive' modes. Such classifications: technical, interpretive/hermeneutic and critical, are usually based on Habermas' (1972) theory of knowledge constitutive interests, which suggests that humans have three distinct categories of needs and interests which shape their social construction of knowledge. Each of these is related to a philosophical stance that questions what knowledge is, how it is acquired and how it is used.

The value of recognising these ideological distinctions between the three approaches to environmental education, it is argued, is that the distinctions draw attention to the underlying priorities and aims which

teachers, institutions and societies may have. This is important it is suggested, because the priorities and aims are likely to be reflected in the practices at each of these levels, and consequently in the nature of the environment-development education which pupils experience. Although commonly three orientations are recognised, these orientations are often not construed as discrete categories by environmental educators, but rather as 'shifting territories' - which are closer or further apart from each other, and to a greater or lesser extent contested - highlighting the inconsistencies and ambiguities within any individual's standpoint (Janse van Rensburg, 1994: 7). To such classifications can be added technocentric and ecocentric dimensions as John Fien has done (1993b: 40). According to Fien (1993b) vocational/neo-classical tend to the technocentric, liberal-progressive and socially critical more to the ecocentric. Increasingly, it seems such distinctions are less relevant today.

Indeed, in exploring these mutually exclusive orientations and the transformatory roles of environmental education, Eureka Janse van Rensburg (1994) concludes that it would seem that many of our views on the environment, social change and environmental education and research are conceptualised and enacted from within modernistic assumptions. She argues that 'modernistic assumptions of the role of environmental education and research in social change limit that potential' (p. 16). In my view, and in agreement with Janse van Rensburg, these different orientations have all, to varying extents, influenced both the practice and self-understandings of education and research in the field of environmental education, but, they are all founded on a very modernist conception of 'rationality'. Not only is this classification of knowledge constitutive interests a very rationalistic theorisation, but it also privileges the place of 'rationality' in human experience and social interaction. It perpetuates essentialist and universalising epistemologically realist discourses. Such a classification of knowledge still implicitly operates within the terms and discourse of the positivist/empiricist paradigm, and retains as a defining polar opposition the objective/subjective binary (Usher *et al*, 1997: 204). Such classifications create a feigned hierarchy, and perpetuate the modernist myth that certain forms of knowledge by their very nature have the capacity to bring about change, be emancipatory. Here, Foucault's (1980) argument, that everything is dangerous, is a salutary reminder that knowledge is implicated with power. His concept of power/knowledge reminds us that there is a mutually constitutive relationship between power and knowledge, so that knowledge is indissociable from power. Jennifer Gore (1993: 61) deploys Foucault's notion of 'regimes of truth', pointing out that all three types of knowledge have their own particular power-knowledge nexus. Environmental concern draws our attention to the need to adopt a reflexive orientation to modernity, its ideals and the ways in which we attempt to realise them (Beck, 1992). Having said this, I am not implying that the 'new generation' environmental education has inevitably moved beyond a modernist rationality, or suggesting that it should be viewed uncritically.

It has been the purpose of the proceeding discussion to foreground some of the environment-related educational practice of a primary school teacher, via an engagement with recent environmental concern and 'new generation' articulations of 'good pedagogy' in environmental education. It is evident that such

environmental education transgresses some old boundaries and roles, and is repositioning actants and institutions in the generation, transmission and application of knowledge.

It can be concluded that adopting this kind of 'new generation' environmental education not only radically alters our understanding of the nature and scope of environmental education, but also changes our appreciation of the relationship of the child and the school and the local community. It also changes our understanding of the child as learner. This raises fundamental questions for environment-related educational practice and research. Two broad questions can be identified:

1. how are the complex relationships between human beings and their environments best represented and explored through the curriculum?
2. how to effect changes in the organisation of schooling which will enable the 'new generation' environmental education to become part of mainstream curriculum provision accessible to all pupils?

The rest of this chapter and chapter 8 focus on the first of these questions. The second question is not considered further.

situated views of knowledge and learning

The first question raises fundamental questions about the nature of educational knowledge itself. This involves conceptions of reality, knowledge and truth in which education is rooted and conceptions of the child as learner, which are considered below; and the relationship to nature in which it invites pupils to participate, which is considered in chapter 8. Whether teachers adopt a realist ontology with respect to the biophysical environment, environmental issues can be seen as historically, socially and culturally constructed, and their meaning and significance are related to those historical, social and cultural contexts. I start with some thoughts from Suzanne.

Suzanne

Children are the focus of learning. Curriculum design has to be concerned with significant pupil involvement and the valuing of their questions, viewpoints, concerns and reflections. Redesigning the curriculum with significant pupil involvement is certainly not an easy way - it is messy, a very challenging and trying experience. It is not one that can provide teachers with a simple, linear lock, stock and barrel approach. It can mean that the curriculum and learning experiences might go in directions unanticipated by the teacher. This can be a very uncomfortable experience. We seem to be ingrained in a system of teaching concerned with the specification of content, teaching strategies, statements of attainment (what we expect of the children) and so on, so ingrained with the

established curriculum, we almost seem to forget the children, the learner.

I said I now tended to see knowledge as interactive rather than static. It is the interaction between the learner and context. Addressing knowledge requires an active process because only through the interaction of the learner with a context can knowledge unfold and evolve.

A context is almost anything in a sense - a specific issue, where a person is, how they are feeling, everyday life, coming to school. And as teachers I think we need to provide children with opportunities and guidance to construct knowledge and understanding.

There must be participation, the children must be involved, this involves activities that are common in primary schools anyway - whether it is the collection and use of data, involvement in science experiments, talking to people - the doing is important. But it is also important to encourage children to question - 'what does this tell us', 'what does this mean'. I think this is where 'active learning' can often fall down. We allow the children to be involved, give them 'hands on' experience, eventually, only to tell them what the right answer or answers is/are.

As a school teacher I sometimes felt that I was giving my students answers to questions that they had not asked, 'knowledge' that was of no relevance to them.

Children also need to question - question possibilities, see alternatives. But even if we get to this stage, we often undermine the developing knowledge of the children with a common authoritative statement: that is very interesting BUT - you have forgotten; what about; what if; and so on, and even worse, are you sure that is right; are you sure that is what you mean. These can be important questions to ask children, but they have to be done in a way which allows their knowledge to evolve and unfold. Otherwise the children see you as being the person with the right answers - you simply return to the teacher being 'an authority' and knowledge will be static.

I began to ask questions of myself. Why this knowledge? Why is it important? Really the question I was asking was - why do I think this knowledge is important. Why does the National Curriculum think this knowledge is important? I realised the teaching-learning process was being driven by an already written curriculum and by

me, I was still being seen by the children as 'an authority', as I have said, the person with the right answers, or the person to please. There was a very strong emphasis on me - the teacher.

Hopefully the answer was because I saw it as being relevant and of use to the children, if not now then certainly in the future. But I also think I would have had to answer: because it 'has to be done', its part of the National Curriculum.

Another important point to make here is that if children are not provided with the opportunities and guidance to construct knowledge, they will not learn to take responsibility for their own learning - to begin to determine their own learning experiences. This is the other part of what I meant by significant active involvement. For me, this brings to the fore the whole issue of the role of the teacher. I don't think that what has been said so far is arguing for a 'content-free' curriculum, or one that is without rigour or direction, without adult guidance.

All those things you have just mentioned have to be there. I think I have already mentioned guidance - adult guidance already. I have stressed the importance of, and tried to define what I mean by active learning. But this learning is not just 'as and when' or 'any old learning'. As teachers, we have a professional responsibility to focus children's learning on significant issues. And these should be studied in relation to both the children and today's society. And they should be studied with rigour. The children should know that we have high expectations of them, which eventually turns into high expectations of themselves.

The work we have done together was for me very much about helping the children to make connections, connections about concepts and knowledge, helping them to frame questions, identifying sources of information for exploration, questioning the answers, and identifying the relevance to their own lives. And particularly important for me is the idea of application, taking the children into the realm of application. By this I mean that schooling is not just about preparing children for the future, it is about living today. Through dealing with the significant issues at hand, the areas of interest and concern which currently imbue our lives, by relating new experiences to previous understandings, children (and ourselves) enhance their understanding and expand their knowledge and its application. In other words, if we want young people who can 'make sense' of

themselves and the world in which they live, and make contributions to society, we must design and support learning environments which sustain young people as they construct knowledge - as they learn.

Familiar routine seems to place blinkers on our thinking. And this familiarity is the line of least resistance - the easier way. If we are not careful we get locked into routine practice - 'what is' becomes 'what should be'.

Does this mean there is a need for 'unlearning' as a necessary first step - that many of our assumptions about teaching and learning have to be put away. And that only when we realise that very few things are 'necessarily so' can the full range of possibilities be realised.

One feels very unsure and vulnerable to begin with. Familiarity brings order and security to one's daily life. Critical self-reflection and evaluation of long held professional ideas and practice is frightening, but it is a necessary step. You have to stand beyond the familiar, beyond routine practice and consider the possibilities that do exist. That is necessary if we are going to make a difference. We have to recognise the need for change. I don't think adjusting the existing curriculum is going to be enough.

Throughout the text I have presented an outline of the intellectual traditions that have contributed to the theory embedded in my analytic work. The presentation of these intellectual traditions reflects a search for analytic discourses that are able to deal with the complexity of those phenomena that I have encountered as an educational practitioner (both as a teacher and as a researcher) in every day classroom life, and the relations between 'nature' and 'society/culture'. The text started from a view that the world of human existence and does not exist independently of human activity, but is a product of that activity. In particular that the world is constructed materially cum discursively (artifactual constructionism). It is a world of increasing complexity and uncertainty, and a more critical appraising of 'expertise' the truth of which was previously taken for granted, of reflexivity. From an epistemological viewpoint, I have pointed out that there have been changes in the way we typically understand the nature of knowledge and what it means to know (this is a theme developed further below). The most prestigious form of knowledge, scientific knowledge, has become less secure. The 'old truths' about science have given way to doubts and anxieties about the contribution of scientific knowledge to human and nature's well-being. Nowhere, in fact, is this more evident than in concerns about 'the environment' and the contribution of science and technology to environmental degradation and potential ecological disaster. Along the way, I have flagged up self-identity, cultural diversity, and argued that research was very much a reflexive and textual practice, and that 'education for environmental improvement' (Walker, 1997b: 252), has become increasingly significant as an issue at the school, community, national and global levels in recent years. And the 'new generation'

emphasis on educational action to effect environmental improvement not only suggests that all social groups, including children, have the potential to be agents of social and environmental influence and change, but operationalises this action on the basic premise that knowledge is not given but socially constructed.

The emphasis in this form of environmental education was to encourage within pupils the development of responsible, action-oriented strategies to solve real concrete problems within their local environment and thereby understand more fully not only how the natural but also the social, cultural and political environments operate in practise...knowledge is not regarded as an accepted given, but is seen as socially constructed which informs purposive human action within the context of their own lives and society.

(Uzzell, 1999: 412)

These analytic traditions and social background also serve as referents for a consideration of learning and the social construction of knowledge within [environmental] education. As McCormick and Paechter (1999) emphasise, 'in using the two words 'learning' and 'knowledge' together we are saying more than that there are connections between them' (p. xi). Along with McCormick and Paechter I want to examine and build 'on the idea of the nature of *learning as a knowledge construction process* (*ibid.*, original emphasis).

Whole books on learning exist that have almost nothing to say about knowledge, except to treat it as the 'content' of the learning process, i.e. something that has no effect on the process and is itself not affected by the process. Yet, it is evident that it is impossible to have a view of learning without also implying a view of knowledge.

(*ibid.*)

I start by highlighting an opposing view of learning, which has its origins in behaviourist and individualist perspectives – a symbol processing approach. This is done in order to consider learning as situated in knowledge communities. Symbolic-processing approaches understand the learner and the context as separate, learning takes place within the human mind as the individual processes information they receive through their senses, assimilates that information and creates new ways of understanding. This approach has its origins in empiricism, which understands the world as given and then received by individual minds. It operates on three dualist assumptions: the separation of language from reality, mind from body and the individual from society. The first of these, the separation of language from reality – epistemological or representational realism - has a long philosophical lineage, and was considered in chapter 3 when discussing research.

To remind the reader. The notion of epistemological/representational realism misrepresents the process of how we act in relation to stimulus from being in the world. The symbol-processing view of learning or mind is underpinned by this idea of epistemological realism. However, as I argued in chapter 3 reality is not organised as such, but requires the active efforts of the individual working in the world to make sense of it. Representations of reality are not given in a prior sense because of the nature of reality, or because the human mind is constructed in a certain way, but as a result of individual human beings actively constructing that reality in conjunction with other human beings, some contemporary some not so

contemporary. This debate makes reference to the distinction between constructivists and [artifactual] constructionists, in that the former suggest that this active process of learning occurs in the mind, while the latter locate the process in society - in a relational materialism. For artifactual constructionists categorising, classifying and framing the world has to be located in society and not in the individual minds or in reality itself.

Symbol-processing approaches and symbolic thinking also suggest a further dualism, between mind and body. This separation of mind and body locates learning and knowledge in the mind, as the mind passively receives from the bodily senses information which it then proceeds to *process*. The mind is conceived as separate from the physical body and from the situational context in which the body is located. Learning is understood as an active process of acquiring information from the situational context. Social constructionism emphasises that learning involves intimate and interactive contact with the situational context which both contributes to further understanding for the individual, and changes or transforms the situational context itself. In other words, knowledge is not understood as a passive body of items to be learnt about the situational context but as an interactive process of construction.

The third dualism that is problematic is the separation of the individual from society. The individual/societal distinction which is central to a symbol-processing view of learning separates out individual mental operations from the construction of knowledge by communities of people and this leaves it incomplete as a theory of learning.

learning as a social practice

Most theories of learning pay attention to learner(s), contexts and *processes*, with the way that the relationship (or non-relationship) between learner(s) and context is understood affecting the learning process. Here, instead of using the process metaphor which is in common usage when describing and planning for learning, I want to begin to explore the notion of learning as a social practice. In chapters 3 and 5, especially, I described research as a social *practice*. 'As researchers, our awareness of the activity of research is normally in terms of a 'process' systems metaphor, e.g. that research is a process or system' (Usher, 2001: 52). The notion that research is a process or system does have a certain heuristic value, but it is also limiting because it makes research seem mechanistic, a step by step linear and finite activity. 'Most significantly, it projects a model of research as both disembodied - an ahistorical, apolitical and technical activity, a decontextualised set of procedures and methods - and disembodied in the sense of being carried out by abstracted asocial, genderless individuals without a history or culture' (*ibid.*) If instead we see research as a social practice we are better able to recognise that it is not a universal process of applying a set of general methods or of following a set of procedures. Rather methods and procedures are themselves a function of the knowledge-producing community's practice, its 'culture', boundaries and exclusions. It is precisely this 'social practice' which tends to get lost when we describe learning as a process or describe the curriculum in terms of a process model of curriculum design. These 'world-making' social practices involve particular ways of 'reading', and 'writing', interpreting and understanding the world. Research and

learning are social practices constituted by what is acceptable within knowledge-producing communities. In that sense, if we do not recognise those social practices, there is no requirement on the part of the researcher or the learner to question the way she/he as a researcher or learner has organised meaning and constructed the world.

To view learning as a social practice is to not only reconnect learning and knowledge, but to say that knowledge is more than 'the 'content' of the learning process i.e. something that has no effect on the process and is itself not affected by the process' (McCormick and Paechter, 1999: xi). It is also to say that knowledge is not something that a person *has* (or does not have), but as something that people *do* together. The implications for the context of learning in taking a social construction view of knowledge, is that this context is a social one, social at the classroom level and at the community level.

The process model of curriculum design (based on Stenhouse, 1975) is based on pragmatic theories of knowledge, 'on a cluster of ideas associated with the twentieth century American pragmatists Pierce, James and Dewey' (Elliott, 1994: 140). Implicitly, at least, these pragmatic theories, are epistemologically realist, while a process model of the curriculum and pedagogy enable children to be actively involved in their own learning, it does not put the learner into the picture, there is no requirement for the learner to be aware of themselves as learners or to challenge the myth of a 'found world' through learning – it decontextualises knowledge production. The lesson here, as Robin Usher (2001) suggests is that such an approach to research – and learning – 'is not an alternative perspective, let alone a new method. What it is, if it is anything at all, is an injunction to be constantly vigilant, to take nothing or granted' (p. 54). By being vigilant we are reminded to always ask, as learners, not only – what am I finding out? – but also – where is it coming from? – and what are its effects? In this way we become aware that both research and learning are not transcendental activities or merely the application of an invariant process. Most of all, we become aware that research and learning are both 'constructed' and 'constructing' activities. What is also dawn out is that learning can be powerful, oppressive and dangerous. There are always two sides to the practice of learning.

The term 'situated learning' (Scott, 2001) captures some of the concern here. But I am not suggesting that this is a specific type of cognition, of knowing and thinking, and thus, to imply that there also exists a type of cognition that is not situated. All knowing and thinking is situated. I use the term, for the moment, because the aim of learning is moved from questions about the nature of people, 'society' or 'nature' and towards a consideration of *how* certain phenomena or forms of knowledge are achieved by people in interaction. It places emphasis on social practices, on 'working with knowledge', it affords the possibility of identifying degrees of situatedness emphasised within learning to 'knowledge work' in the school-community context, and where we strive to distinguish the knowledge implicit in the practice from knowledge that is the product of the practice (the world of knowledge objects). While learning to 'knowledge work' in school-community contexts is, venturesome, it seems reasonable to assume that pupils who have had experience in explicitly working with knowledge will have an advantage over ones whose

experience has been limited to the traditional kinds of scholastic learning and doing in which knowledge, as such, is seldom the object of attention.

The reflexive modernisation thesis (Beck *et al.*, 1994) or 'radicalised modernity' (Giddens, 1994) profoundly problematises the institutional activities of various experts within the intensification and globalisation of reflexivity, who are restlessly engaged in attempting to construct 'better' knowledge in the quest for novel interventions into a 'runaway world' of 'dislocation and uncertainty'. For Giddens (1994) human existence is not necessarily more risky under contemporary conditions of social life, but, rather the origins of risk and uncertainty have changed. He argues that 'manufactured risk' is the result of human intervention into the conditions of social life and into nature (p. 4). Moreover, what was supposed to create greater certainty – the advance of human knowledge and 'controlled intervention' into society and nature – is actually deeply involved with this unpredictability (p. 3). A major social issue for our time is 'the paradox of human knowledge' and 'whether the world will be run by an expert elite on one side of the divide while the bulk of humanity remains on the other. It seems to me that today's schools are on the wrong side of the divide' (Bereiter, 2001; in Paechter *et al.*, 2001: 1). That bodes ill for prospects of moving much of the population to the reflexive modernity side and towards more sustainable societies. As educators, in the main, we have not tended to conceive of knowledge as something that is manufactured, modified, worked with and even packaged, repackaged and sold. The 'uncertainties' and opportunities' which are a consequence of the 'advance of 'reflexive modernity' perhaps now require this. Such a context not only necessitates curriculum emphasis on social *practices*, but within the context of 'reflexive modernity' makes them an aim of education. In this context, '*practical competence*' consists in abilities to construct knowledge reflexively and to effect desirable changes in the personal and communal situations of everyday life. The notion of 'practical competence' as discussed here, is somewhat different from 'action competence' within the new generation discourses on environmental education, as I point out below.

It has become clear that through the many studies of knowledge construction in areas such as science that such construction is indeed a social practice. This view of knowledge has important implications for those concerned with curriculum and pedagogy. If learning is the social construction of knowledge then this has implications for how we view the *nature* of knowledge and the *context of learning*. Conceptualising learning as a knowledge construction practice intertwines learning and knowledge as a constructive practice at two levels. The first as McCormick and Paechter describe, 'is at the level of the interactions that learners have with each other and with those more knowledgeable than themselves. The concern here is with interactions (what McCormick and Paechter label the interactional level). This is traditionally the focus of learning theories' (*ibid.*) in the context of schools, and commonly learning outcomes emphasise an individualistic view of learning. The second is at the level of the community, which involves the social formulation of knowledge. These two levels are interconnected if it is accepted, as I do, that learning is the *social* construction of knowledge. At both levels knowledge-production practices have been underplayed in learning.

My concern is to emphasise learning within particular socio-cultural practices [or communities of practice]; and subsequently to stress that this multi-social dimensional learning should also include explicit discourse on this. This is to view the learner and the social situation as mutually constructed and mutually constructing. As a result such approaches to learning 'stress active, transformative and relational dimensions of learning; indeed they understand learning as contextualised' (Scott, 2001: 37). Unfortunately, as MacIntyre (1988: 201) suggests our actions and thoughts are placed in the history of western knowledge, and many of us enact that within which we have grown, but we have decontextualised this history, we have lost sight of the values it espouses.

Important in coming to understand the dynamics of situated knowing and situated learning is the notion of the community of practice to knowledge production. 'In recent years, the notion of *community of practice* has gained prominence as an analytic tool for understanding knowing and learning. Communities of practice are characterised by shared practices, (linguistic) conventions, behaviour, standards of ethics, view points etc' (Roth, 1999: 16), where the assumption is members have different interests, make diverse contributions and hold varied viewpoints. The term does not imply necessarily 'co-presence, a well-defined, identifiable group, or socially visible boundaries. It does imply participation in an activity system about which participants share understandings concerning what they are doing and what that means in their lives and their communities' (Lave and Wenger, 1999: 23). In communities, knowledge can no longer be considered as a property of an invariant process involving individuals, rather knowledge is distributed and contested, situated in both physical, psychological and social contexts (Brown *et al.* 1989; Lave and Wenger, 1991; in Roth, 1999: 16). This knowledge is collaboratively constructed, meanings are negotiated, and courses of actions negotiated; determined by some form of consensus or dictated from someone in power by drawing on the social and material resources available in specific settings.

For example, in relation to environmental issues, we would expect children to engage in social practices that allow them to:

1. learn in contexts constituted in part by ill-defined problems/issues
2. experience uncertainties, ambiguities, and the social nature of scientific work and knowledge
3. experience themselves as part of actual communities of enquiry in which knowledge, discourses, practices and resources are both contested and shared
4. engage in learning which is predicated on, and driven by, their current knowledge state (whatever that might be)
5. participate in classroom communities and local communities, in which they can draw on the expertise of more knowledgeable others, whether these others are peers or advisors
6. include explicit discourse on this.

In this way learners are involved within and come to an understanding of the *actual* practices involved in knowledge formation.

From a community of practice perspective, learning is squarely located in the social practices of knowledge formation. Rather than focusing on discrete bodies of knowledge to be transferred from more knowledgeable teachers to less knowledgeable learners, or concerned with using decontextualised 'process skills' to enquire into real [environmental] issues, situated learning emphasises learning through the social practices of knowledge communities - the learning practices have a large degree of resemblance with the practices in which members of a knowledge community actually engage. While school children are legitimately peripheral to such communities of knowledge practice¹, they should not be kept from participation in the social world more generally, nor, if we accept, as I do, that learning is the *social* construction of knowledge, from 'peripheral' participation within communities of practice. The 'new generation' discourses on environmental education based on participation and action competence stress the importance of school children becoming engaged in the social world, and that their learning is less distanced or disconnected from particular socio-cultural knowledge practices. As educators we need to better understand the effects of children's peripheral participation on knowledge-in-action within 'reflexive modernity'.

The action competence approach to environmental education emphasises that the boundary between school and community should be permeable. However, what is clear from this discussion is that this emphasis on strong school-community links also requires '*interpretive competence*'. This, with action competence are the two social capabilities of practical competence within school-community relations. Interpretive competence recognises the situational context and would better enable responsible action by pupils to solve real problems within the local environment. What I have attempted to emphasise is that not only do we need to be more sensitive to the situations within which we find ourselves, but that interpretive competence is made more difficult, but at the same time more urgent and necessary by the heterogeneity, complexity and uncertainty of contemporary society. Unfortunately, environment-related educational practice does not always promote such contextualised thinking. We need to search for ways to cope with difference, complexity and uncertainty, seek to develop a tentativeness of interpretation, openness to alternative perspectives and avoid closure - to develop interpretive competence.

As a consequence of this view of knowing and learning, heterogeneity, complexity, contingency, improvisation, interaction and emergent practices all play a constitutive role in learning and knowing and cannot be reduced to generalised structures. Situated learning also brings out the learners productive contributions to the order of interactions. The order that emerges from these interactions is more a social practice than a predetermined learning outcome. The concept of community underlying the notion of participation, and hence of situated learning and of knowledge and its location in the lived-in world, is both crucial and subtle. This is not an argument for the immersion of schoolchildren in [actual] communities of practice. What I am arguing is that their necessarily peripheral location should not be understood in terms of their engagement with decontextualised bodies of knowledge, or decontextualised process skills, but instead with knowledge-in-practice.

Situated learning approaches reject the view that our representations of reality are given in a prior sense or that the human mind is constructed in a particular way which determines what and how we learn, but, instead, argue that learning is embedded within arrangements made by particular societies. The source of learning is therefore particular social practices. This shifts from a view of knowledge as an object to something that is not just a process, but as a participatory construction practice.

This situated view of learning calls for a recognition of 'history' and 'context' when engaging with environmental issues. It is more concerned with developing possible solutions than giving information about problems. Learning is neither linear nor individual; within context and action learning is stimulated by the interacting practices of 'encounter' with issues and people, dialogue about those issues and reflexivity. It approaches change at the level of the individual, the group, the community and, ultimately society, where change is consequent upon change in the meaning of experience. Change, I argue, is most likely to occur when the learning practices are used to make connections between learners and contexts.

Noel Gough (1993) described well what all this means for environmental educators, 'abandoning any attempt to authorise the stories they tell by claiming 'objectivity' and, instead, to elucidate with learners the processes [practices] through which multiple subjectivities (including their own and those of people who call themselves scientists) interact in the social construction of consensual (intersubjective) understandings of 'reality' (p. 621, I have added 'practices'). An appropriate pedagogy for environmental education would thus explicitly foster the kind of thinking that deliberately draws attention to the relatedness of the observer and the observed and the personal participation of the knower in all acts of understanding. Such a pedagogy implies a reversal of many of the taken-for-granted assumptions about the relationship between 'fiction' and 'reality'. The consequences for environmental education are perhaps best understood in terms of story-telling: we must abandon the conceit of trying to tell 'one true story' and, instead, deliberately treat our stories as 'metafictions' – self conscious artefacts which invite deconstruction and scepticism. What would this look like in practice?

Summary

The purpose of this study of aspects of Suzanne's thinking and practice is to make explicit and visible the frames of reference through which she perceives and practices teaching that contributes to children's environmental education, focusing on:

How teachers make sense of their professional world, the knowledge and beliefs they bring with them to the task, and how teachers' understanding of learning...and the subject matter inform their practice.

(Calderhead, 1996: 709)

Amongst the many contexts within which the teacher dwells and operates, each teacher has an intellectual context that is thought to be composed of a mixture of only partially articulated theories, beliefs and values about her role, the subject area, and about the dynamics of teaching and learning (*ibid.*). It is widely recognised that to attempt to chart a human knowledge base in any area of professional activity is an

ambitious and potentially endless task (Clark and Peterson, 1986). It is also commonly recognised that for a variety of reasons, teachers may be unwilling or unable to represent their knowledge and beliefs accurately.

A study such as this requires methods that stimulate and motivate participants to explore and make explicit thoughts, feelings and suppositions of a personal and possibly idiosyncratic nature that are not necessarily the subject of routine conscious reflection. Smyth (1999: 69) argues that those implicit theories which are the subject of these kinds of study can be covert and beyond immediate access to the researcher. Some of these theories may be tacit and previously unarticulated by the teacher, others may be consciously held and already well articulated by their holder.

In order to describe Suzanne's conceptions of the teaching of environmental education, and to compare her implicit theories with their actual classroom practice, inevitably depends upon various forms of self-report by the teacher. The central methodological issue concerns how to elicit and interpret credible and trustworthy self-reports about teachers' thinking in terms of knowledge and beliefs that teachers act upon. This enquiry proceeded on the assumption that developing a working relationship based on mutual respect, honesty and openness, combined with a 'multi-methods' approach, including on going conversation about that which we were 'currently attending to' (Clark and Peterson, 1986: 259) in terms of shared teaching, what Clark and Peterson describe as 'reporting on the contents of short term memory', as well as focused discussion, classroom observations and Suzanne 'writing for me', was an appropriate way that would be most likely to give rise to credible and trustworthy data. The multi-method approach was also an attempt to capture both reference to concrete, recent examples of both teaching and Suzanne's thinking, which would be typically context specific; and reference to thinking and practice further back in time, on the assumption that past experience would impact upon the present. These articulations were then probed and made subject to further discussion.

One outcome of this research study has been the recognition that Suzanne placed a high value on the opportunity to articulate her thinking, whether about conceptions, beliefs, and personal theories embedded in her everyday practice; that not necessarily for any reasons I could apprehend. I would agree with Smyth (1999: 69) that 'the process of articulation enables teachers to obtain deeper understandings of their own practice than would be possible without such articulation. Smyth (1999) also claims that understanding the belief systems of teachers and teacher candidates is essential to improving their professional practices. An increase in our understanding of how and why teachers teach environmental education 'as they do' might also be used to influence what teachers do in the future, particularly through pre- and in-service teacher training programmes. To improve the nature of environmental education practice, it is essential to establish and explore those factors that influence teachers' choice of teaching and learning strategies and 'content'. It may also help to improve our understanding of teachers as agents of societal reproduction and change.

Although researchers have described the professional knowledge base of teachers in different ways, there is a recurrent recognition that it consists of various components, including subject matter, pedagogy,

curriculum and learners (Calderhead, 1996). Connelly and Clandinin (1995) have also drawn attention to what is termed 'pedagogical content knowledge'. This distinctive knowledge was seen to include analogies, illustrations, examples, explanations which together formed ways of representing and formulating the subject that makes it comprehensible to others. In this study I have attempted to present this kind of knowledge rather than represent it.

Further thoughts about the research data suggest that the conceptions Suzanne had of her environment-related educational practice do not fit as neatly as expected into established theoretical frameworks and that they were more complex and eclectic. Particularly interesting and significant here is Suzanne's conception of '*being within*' or *being* in terms of environmental education, which is not commonly identified or discussed within established theory. My understanding of this is that the term actually describes an idea of morality – Suzanne invites pupils to go beyond what morality is perhaps taken to signify within today's materialistic society to a more originative and comprehensive apprehension of their relationship with the world around them – that they are part of or within nature. This notion of *being* is a relational one, and for me, has connections with the work of Heidegger, though I do not suggest that this is necessarily the case for Suzanne. Unfortunately, as I have stated previously, she tended not to disclose any detail about her own environmental thinking, so I do not know. This emphasis on being does mean for me that our relationship with nature is a central element of our sense of identity and that whereas sustainable development is highly problematical when taken as a statement of policy, sustainability conceived as an ethical frame of mind may have positive and more wide-reaching educational implications. As I have already emphasised issues concerning the kinds of knowledge and approaches to teaching and learning that should characterise environmental education are raised.

What is interesting for me is that Heidegger was one of the first philosophers to take an anti-representational view of being and subjectivity as paramount, and he has, of course, been very influential. Dreyfus and Hall (1992) list several generations of thinkers who have acknowledged a major debt to his work, including Sartre, Merleau-Ponty, Gadamer, Foucault, Derrida, Bourdieu, Rorty and Habermas. Heidegger's wide influence can be traced to the fact that he 'does not ground his thinking in *concepts*, but in *everyday practice*, in what people do, not what they say they do' (Dreyfus and Hall, 1992: 2). Such a view of an 'engaged agency' leads Heidegger to jettison the Cartesian way of thinking of human beings, as isolated and disengaged subjects who represent objects to themselves, and to settle instead for the world-disclosing functions of practice which always assumes a background of implicit familiarity, competence and concern or involvement. I mention this now, because this idea of relational *being* has significance for my developing understanding of environmental education, this particular understanding seems to be gaining ground within environmental education; and because the notion of 'everyday practice' has taken on significance in education and educational research.

Reviewing the data suggests a flexible and complex relationship between Suzanne's implicit theories and her classroom practice for contributing to pupils environmental education. Calderhead (1996) in considering teachers thinking in general, suggests that if teachers implicit theories are contrary to those

embodied in a curriculum, whether it be cross-curricular, or subject-based; multi-disciplinary or interdisciplinary, they are unlikely to bring the innovative aspects of environmental education alive with great enthusiasm, thoroughness, or persistence. While Suzanne's implicit theories were somewhat different to those embodied in the National Curriculum, her commitment meant that the environmental provision received by her pupils went well beyond that required by the National Curriculum, and certainly had some innovative aspects.

Systematic evidence is necessary, Gore argues (1997) 'if claims about pedagogy are to carry persuasive power in relation to the multiple audiences for whom theories of pedagogy are intended' (p. 214). If the aims of advancing a theory of pedagogy are to help practitioners change what occurs in the classroom and to work for the environment, what will persuade them, and especially those that do not accept critical critiques, to substantially alter their practices? Separating theoretical and empirical domains of analytic work for a research project such as this is counterproductive and unnecessarily limiting, both in terms of the claims which can be made and the audiences which will listen. In education, where so much of our work is oriented at improvements in schooling and outcomes, this alliance of analytic activities seems important.

If theories of pedagogy are to inform educational policy, they are directly inserted into a political field which is imbued with concerns for accountability and dominated by discourses requiring 'scientific evidence'. Abstract and even clear and elegant arguments about pedagogy are unlikely, on their own, to carry much weight with most teachers, policy makers and 'mainstream' theorists of pedagogy. This line of argument leads Gore (1997) to suggest that attempts to develop a theory of pedagogy ought to have strategic applications. 'While I wouldn't want to argue that all intellectual work in education must lead to direct improvements in classroom practice, in the field of pedagogy (and especially in critical pedagogy, where so much theorising has occurred) I believe it is incumbent on those who argue for improvements in the practice of pedagogy to direct their efforts at some form of strategic application. Such work will have its limits, even if its target is policy or discourse, if it is primarily speculative and fails to draw upon systematic evidence' (p. 214).

As an environmental educator I hoped that the research would contribute in some way to the changes apparently required to address socio-ecological issues. One such way may be through research which challenges entrenched understandings, ideas and practices. Many academics have pointed out, often in relation to the environment-development crisis, that current conditions require us to re-think those conventional patterns of thinking and doing. It is from such a perspective - and not a scholarly desire to find things to unravel and critique - that I find research which challenges conventions an appropriate response in processes of social change for a better environment. By involving ourselves as educators in the kind of research that maximises the value of the [collaborative] process and the rethinking of conceptual conventions, we participate in educational development with teachers, and particularly at the level which I believe has most transformative potential, the level of practice.

For many teachers perhaps, living the narratives highlighted at the beginning of chapter 6 will mean 'learning to change'. According to the literature, change in environmental education involves changing schools and society through new curricula and resources, new teaching practices and new educational policies. The challenge to educators is framed in terms of sustained and critical involvement in practical and political action; which inevitably means personal change. Learning to change in our personal and professional lives through constructive action in a localised context is an admirable one, but how realistic is it and what will make it happen?

We know very little about change whether at a personal or a societal level. We do know that change is a very complex matter. In an article entitled *Policy and Research in Transformation – Or Not?* Eureka Janse van Rensburg (1996) writing within a South African context of reconstruction argued that expectations of research bringing about change through its *application* in, for example, policy documents, are bound to disappoint. Rather, good research appears to be *a process of change*.

The view that research results can be 'applied' to improve situations, e.g. to develop better policies or curricula, relates to a utilitarian perspective on research. It is in keeping with modernistic notions of science, knowledge, and progress as neutral, cumulative and context-free tools for progressive enlightenment. However, research (and policy) have to a large extent failed to transform educational practice as planned

(Popkewitz, 1981; Robinson, 1992)

The failure to 'make a difference' (Janse van Rensburg, 1996) is however not only seen as a result of mistaken assumptions about the nature of research and knowledge, education and change. Other reasons which have been raised by environmental educators, according to) are that, 'research is often done by 'outsiders' and/or applied in a top-down manner (O'Donoghue and McNaught, 1991; Taylor *et al.*, 1993), inadequately communicated or shared with those whom it concerns, and not grounded in action' (p. 69). In response to these diverse concerns we have in recent years seen the emergence of participatory and/or action-based forms of research in a variety of contexts including academic and professional development in environmental education. In practice-oriented research we may challenge ourselves and others to re-think those underpinnings of environmental problems and assumptions about solutions, which contributed to socio-ecological issues in the first place.

Notes

1. The actual reproducing community of practice, within which schoolchildren learn about particular subjects and other areas of knowledge, is not the community of that subject/area of knowledge but the community of schooled adults (Lave and Wenger, 1999). In this view, issues of schooling are not, at their most fundamental level, just pedagogical. Above all, they have to do with the ways in which the community of adults reproduces itself, with the places that newcomers [school children] can or cannot find in such communities, and with relations that can or cannot be established between these newcomers and the cultural and political life of the school. While there are good reasons for schoolchildren being *peripheral* to other communities of practice, it is in this context that the pedagogical issues I am concerned with take on meaning.

Non-representational theories of environment-related educational practice

There is no meaning in the distinction between 'first' and 'second' nature. There is no place which humans can reach which predates human history. The nature that preceded human history...today no longer exists anywhere...

(Marx and Engels, 1981: 63)

Humanity is confronting both ecological decline and an explosion of discourse about nature. Although there is an unprecedented shift in public awareness about ecological issues, this does not guarantee a return or regeneration of the nature of old. At the same time as nature and ecology become the centre of attention, they are transformed in ever more radical ways...In this complex dialectic, culture and communication have material force: They are material processes as well as also being symbolic and imaginary.

(Phillips and Mighall, 2000: 13)

As we look to the future replete with dangers and possibilities, there is a pressing need to convene an ongoing conversation on the modalities and consequentiality of the social natures we are presently making and inhabiting.

(Braun and Castree, 1998: xiv)

Nature is something imagined and real, external yet made, fiercely contested at every turn. It is at once everywhere and nowhere, the foundation for all 'life' and the elusive subject of theoretical and political debate.

(Braun and Castree, 1998: p.3)

Accounts of a 'real' world do not, then, depend on a logic of 'discovery', but on a power-charged social relation of 'conversation'. The world neither speaks itself nor disappears in favour of a master decoder. The codes of the world are not still, waiting only to be read...no particular doctrine or representation or decoding or discovery guarantees anything.

(Haraway, (1991: 198-9)

Indeed, by rendering nature as something 'external' to be saved 'from' humans, we erase its social and discursive constitution, with the result that the nature to be preserved simply reflects our own social values and anxieties – it becomes a 'fun house' reflection of ourselves.

(Haraway, 1992: 296)

Something... must be wrong somewhere, if the only way of to understand our own creative involvement in the world is by [first] taking ourselves out of it.

(Ingold, 1995: 58)

If humanity is to survive, we must recognise that there is no 'outside' from which to speak or act; we must gain a new normative matrix for the conception and production of the world. Survival is the one universal value that transcends the proclamation of difference.

(Fry and Willis, 1989)

Relationship more than system should be our starting point.

(Cronon, 1990: 1130)

The difficulty - I might say - is not of finding a solution but rather of recognising as the solution that looks as if it were only a preliminary to it...This is connected, I believe, with wrongly expecting an explanation, whereas the solution of the difficulty is description, if we give it the right place in our considerations.

(Wittgenstein, 1958: 27e)

Introduction

Investigating the relationships between the 'natural' and the 'social/cultural' realms has been an abiding preoccupation for geographers (Naylor, 2000: 261). The division of the world by geographers, social

scientists and scientists into two all encompassing and mutually exclusive kinds of purified things, the so-called culture-nature binary, has cast a long shadow over the way we imagine and live in it – and the way that we learn. Growing awareness of our environmental situation and growing environmental concern has provoked debate about the nature of ‘nature’. For some this has provoked not simply a reassessment of certain kinds of human activity in the light of its effects on ‘nature’, but an investigation of, and re-appraisal of, our basic stance towards that realm. The chapter suggests that teachers need to reconsider how they construct and represent ‘nature’ [‘the environment’] and society in their lessons. The question: how we think of nature and culture/society in the modern/postmodern era is an important one for education.

This chapter highlights the way that science, nature and society are being reconfigured today. It moves on to consider two well-established kinds of accounts within contemporary human geography and social theory [realist and social constructionist] which handle the relationship between culture and nature. It points to the growing dissatisfaction with such accounts and their assumptions that we can best make sense of the world by first setting ourselves apart from everything else within it. Specifically, the chapter is part of my own analytic project, and is intended as a critical contribution to the debate about social constructionism within environmental education, via an engagement with the debate about the social construction of nature and human identity. This is not a matter of setting out to fatally undermine social constructionism, but I want to look at how the nonhuman impacts upon the production of environmental education practice.

I consider some critiques of social constructionism that, while sympathetic, nevertheless attempt to find a conceptual space for the ‘non-social’/‘nonhuman’. It is a basis for breaking down some of the strictures imposed by social constructionism on understanding culture-nature at the millennium and the practice of environmental education. Social constructionism closes off certain avenues of analytic work which I think are important, specifically those that take seriously the ‘non-social’/‘nonhuman’ as something other than ‘mere’ social constructions - while taking social constructionism very seriously. My position is that I do not take ‘nature’ as a human-independent realm, arguably no such realm any longer exists, and in a certain sense, probably never did, but as a dimension to [human] *being*, existence.

This idea first ‘materialised’ whilst thinking about a comment Noel Gough made at an environmental education seminar at the University of Bath in May 1995. He commented that education *for* the environment makes the huge assumption that we (society/human beings) know what is best for ‘the environment’. I recognised the anthropocentric-ecocentric argument and binary. But it also dawned on me that in a sense it was a ‘double binary’ – a debate about our relationship with nature, but where nature was already separate from us. It brought out the ‘otherness’ of nature – which often is not recognised in our anthropocentric or ecocentric environmental concern. The work of Sarah Whatmore and others have given some shape to that ‘otherness’, in the way that our geographical thinking and environmental sensibilities help to keep ‘nature’ and ‘society’ in their proper place - and the need to liberate them from this binary world, to refuse the purified spaces of nature and society.

the construction of science, nature, and society

Issues surrounding the social construction of scientific knowledge are of significance not only in terms of epistemology. They relate also to how nature and society are today being reconfigured. We are being challenged to look again at how and where we draw the line between society/culture and nature. Culture-nature relations lie at the heart of our everyday (as well as our more intermittent) experiences. As Bruno Latour (1993) notes, we live within a modern 'constitution' that assigns 'nature' and 'culture' to two distinct realms, and similarly situates 'knowledge' in one (nature) and 'politics' in another (culture). This modern constitution Latour argues, allows technoscience to build both nature and society simultaneously, but in ways that remain relatively unexamined and under connected. 'Even more recent theorisations of nature-society/culture relations rely heavily on interactive or else dialectical concepts, whether framed in terms of natural limits, reciprocity or mutual accommodation. Yet even posing the issue as one of a dialectical relationship between nature and society – with the Hegelian lineage of dissolving dualisms – seems still to produce the dualism...[It] is to risk, to loosely paraphrase Donna Haraway, trying to balance on *both* poles at once (Fitzsimmons and Goodman, 1998: 206, author emphasis). It is this balancing act that persuades David Demeritt (1994) that new metaphors are needed 'for framing nature as both a real material actor and a socially constructed object' (p. 183). For this purpose, Demeritt recommends Bruno Latour and Dona Haraway.

Latour (1993: 51) closes the Kantian 'Great Divide' between nature and culture by analysing these interactions as symmetrical processes that create hybrids, which he calls 'quasi-objects, quasi subjects, that 'are simultaneously real, discursive and social'. Haraway develops the metaphor of the 'cyborg' to reveal the partnerships, though not always equal, between human and nonhuman actors joined in the mutual construction of artifactual nature.

One of the advantages of Latour's approach to science and society is that it highlights the analytical and political stakes involved in how boundaries are drawn between science and society, nature and culture. Blurring how these boundaries are drawn serves a wider project of showing the relations of power involved in how social natures are built at the beginning of the twenty first century. Until now, these relations have remained invisible as a result of our adherence to what Latour (1993) calls the three 'guarantees of modernity: 'that nature has always existed, has always already been there, we are only discovering its secrets; that human beings, and only human beings, are the ones who construct society and freely determine their own destiny' (Latour, 1993: 30). These are underwritten by a third guarantee, the absolute separation of nature and society/culture. Here Latour makes the analytical and political stakes clear:

The essential point about this modern Constitution is that it renders the work of mediation that assembles hybrids invisible, unthinkable, unrepresentable...Everything happens in the middle, everything passes between the two, everything happens by way of mediation, translation and networks, but this space does not exist, it has no place. It is the unthinkable, the unconscious of the moderns.

(p. 32, 34, 37)

Latour argues that we need to be 'amodern', or, in other words, we need to retie rather than endlessly attempt to untangle, the *relations* between nature and society so as to recognise this 'Middle Kingdom' of quasi-objects, quasi subjects. In seeking to retie the relations between nature and society, Latour advances the notions of mediation and network. The work of mediation 'creates mixtures between two entirely new types of beings, hybrids of nature and culture (p. 10), which are mobilised and assembled into networks of relations. The practices of mediation, mobilising things and assembling hybrids corresponds, in Latour's metaphor, to a 'delicate shuttle' weaving the natural and social worlds into 'a seamless fabric'. This 'socialisation of nonhumans' (p. 42) prompts Latour to 'use the word 'collective' to describe the association of humans and nonhumans' (p. 4), which forms the 'Middle Kingdom' between the nature-society poles of modernity.

Although Latour (1993) has been wary of programmatic statements about what an analytical practice [politics] of mediation and networks entails, what I have termed in this text a *relational materialism*, his interventions in our self understandings as 'moderns' – as believing in the absolute separation of nature and society/culture – is rich with analytical and political possibilities, and many of the contributors to this chapter take up explicitly his ideas – for example Sarah Whatmore, David Demeritt, Noel Castree and Bruce Braun.

According to Latour, Haraway and other sociology of scientific knowledge (SSK) scholars and actor network theorists (ANT), tracing networks and relations, *relational materialism*, is where political hopes lie. Recognising the complex intertwinings of nature, culture, science and technology allows us to see the various ways that it is impossible to change the 'social order' without at the same time modifying the 'natural order', and vice versa.

nature and society in geography

If, for arguments sake, we took Carl Ritter's (1779-1859) comments as an illustration of one of the first modern thinkers who specifically and institutionally were practising geographers, with recognisable, organised theoretical views we could state that a significant part of geography's history had been consumed by discussions of nature and the environment and their relationships with humans and society.

Geography, taken most comprehensively, regards the Earth as the dwelling place of Man... The Earth is the grand floor, so to speak, of Nature; the home, or rather the cradle, of men and of nations, the dwelling place of our race...

(Ritter, 1874: xiv-xvi)

However we look at it, geography has a long history of investigating human (social/cultural) – nature relations (see Livingstone, 1992; Macnaughten and Urry, 1998).

Geography, as we are constantly being reminded (the discipline seems to have a constant public image problem), asserts itself as a subject uniquely concerned with the interface between human culture and nature ['the natural environment']. And as Sarah Whatmore (1999a) reminds us:

While the overt sexism of exploring 'Mans role in changing the face of the earth' (Thomas *et al.*, 1956) may have become outmoded (or at least better disguised), this classic description of the geographical project has lost none of its appeal.

(p. 4)

The opening statement in the National Curriculum Handbook (DfEE, 1999) about the importance of geography both within primary and secondary schools asserts:

Geography provokes and answers questions about the natural and human worlds, using different scales of enquiry to view *them* from different perspectives...As such it prepares pupils for adult life and employment. 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...It can inspire them to think about their own place in the world, their values, and their rights and responsibilities to other people and the environment.

(p. 108 and 154; authors emphasis)

In the National Curriculum Handbook Professor Andrew Goudie, University of Oxford is also quoted as saying:

What other subject tells us so much about the great issues of the age – global change, natural and human.

(p. 108 and 154)

It has become shorthand for one of the underlying difficulties with the way the discipline is organised. The ontological assumption that everything we encounter in the world already belongs either to 'society/culture' or 'nature' has become entrenched in the division between 'human' and 'physical' geography and reinforced by the faltering conversations between them. As a result, even as geographers set about trafficking between culture and nature, as schoolteachers make links between human and physical geography, a fundamental asymmetry in the treatment of the things assigned to these categories has been smuggled into the educational enterprise. Geography, like history, becomes essentially the story of exclusively human activity, invention and intervention, played out over, through and into nature as other – an inert bedrock of matter and objects made up of everything else. This divides the world into two all encompassing and mutually exclusive kinds of things, the so-called culture-nature binary. It has not always been so and does not hold universal sway today (Whatmore, 1999a: 4).

The fact that as a discipline geography spans the natural and social sciences might enable those outside the discipline to assume that it is well placed to provide further insights into the human-nature interface, unattainable from other disciplinary standpoints. However, whether outside or inside the discipline, this synthesis of ideas, theories, methods and practices has not taken place. Indeed, the schism between 'physical' geography, 'human' geography and their practitioners has increased since the discipline's inception in the early years of the nineteenth century. This is in large part due, as one might expect, to their quite different epistemological and methodological trajectories. Physical geography has been happy to position itself within the realm of positivist/empiricist science (this obviously scripts too simple a story and fails to account for physical geographers who have engaged with 'post-normal' science, chaos and complexity theory); whilst human geography, with more critical aspirations whether more implicitly

understood or stated, has utilised a range of theories and techniques from social and cultural theory, including Marxism; though on one occasion, through spatial science, it harboured a distinctly scientific view of the world as pre-eminently classificatory and objectifying as its scientific counterpart.

Human geographers have treated nature first and foremost as a social making (artefact), although they disagree over what this means. Two different, but in some ways complementary traditions of analytic work have been particularly influential over the last two or three decades. The first is the Marxist tradition which has been concerned with the material transformation of nature as it is put to a variety of human uses under different conditions of *production*. The second is cultural geography which has focused on the changing idea of nature, what it means to different societies and how they go about *representing* it through their culture and discourses. To drastically précis the concerns of these two traditions, the *production* of nature thesis see 'nature' as transformed through the labour process and fashioned by the technologies and values of human production. From this perspective, nature-society relations are seen to have changed progressively over time from first (original, primordial) nature, to second (industrial) nature to today's third (virtual) nature produced by technology.

A rather different interpretation of what is meant by the social making of nature is that associated with the cultural tradition of human geography. In this geographical enterprise the natural world is understood to be shaped as powerfully by the human imagination and discourse as by any physical manipulation. This is because nature does not come with ready [naturally]-made labels naming its parts or making sense of itself. Such naming and sense making are the attributes of human cultures. The importance of this approach is that it forces us to recognise that our relationship with those aspects of the world we call 'natural' is unavoidably filtered through the categories, technologies and conventions of human representation in particular times and places.

Whether their emphasis has been on its material transformation or on its changing meaning, human geographers have treated the natural world primarily as an object fashioned by the imperatives of human societies in particular times and places. Each perspective different aspects of the convoluted relationship between the things of human making (culture) and those that are not of our making (nature). But in each case, nature is eclipsed. Human geography's long march from environmental determinism to social constructionism seems to have brought us to the end of nature. Whatever their differences both analytic projects triumph human culture over the matter of nature, and are grounded in the assumption that the collective of humanity is somehow removed from the rest of the world. Only by first placing the world 'at a distance can human society be (re)connected to everything else on [such] asymmetrical terms as those between producer and product, viewer and view' (Whatmore, 1999b: 9). These are geographies whose only actants are people, while everything consigned to nature only materialises through our resource.

Over the last few years there has been mounting unease about the ways in which the discipline of geography has built this binary between nature and culture into its descriptions and explanations of the

changing world. These unease stems from several concerns, not least the incapacitating effect this polarisation has on the contribution geography can make to informing more sustainable living practices. The geographies emerging at the beginning of the twenty first century are asking us to look again at how and where we draw the line between culture and nature and to recognise that this dynamic and complex planet is a much more unruly place than these categories admit.

across the disciplinary spectrum

Of course, arguments concerning the 'nature' of nature do not simply range over the frontiers of the human and natural scientific divide (with geography straddled across the border). Academic practitioners within the social sciences have been just as factious in their debates over nature and the environment. This has often been centred around an environmental political issue; environmental researchers worried over the destruction of threatened natures and habitats have voiced concern that 'discursive' or 'constructionist' treatments of nature disable the protection, and sometimes even facilitate the destruction of the natural world.

More recently, these debates have been animated by intellectual impulses which have broadened the horizons of 'critical' work beyond the compass of Marxism, most significantly through 'post-prefixed' theoretical developments and projects. Yet, even as these intellectual energies put the importance of the question of nature for social science beyond dispute, so a new form of enclosure threatens. Across the disciplinary spectrum the tendency has been to 'add nature in' (Whatmore, 1999b: 23) to already entrenched constellations of 'critical' social science. Recent critical engagement with the question of nature has taken the form of a dogged impasse between versions of 'social constructionism' [though commonly the way the metaphor is being used is not elaborated on], in which 'Nature' is treated as an inescapably mediated artefact of the social imagination, and versions of 'natural realism', in which 'nature' is the bedrock of a 'real' world of substantive entities and objective forces (Soper, 1995).

The first of these positions is broadly associated with modes of enquiry labelled postmodern or post-prefixed and linked with the so-called 'cultural turn' in the social sciences, in which the question of nature rapidly slips from grasp and becomes reformulated as an exclusively epistemological one about the socially constructed nature of scientific enquiry or technological endeavour. Here, 'nature' is the always already crafted product of human interpretation and discourse. Critical analysis of this inescapably mediated nature becomes fixed on the social hierarchies and processes, and discursive conventions and devices of nature's inscription by [and in] scientific policies, research, computer models and prediction, the entertainment media, literature and paintings and so on.

Such ideas have been met with deep scepticism, even antagonism amongst environmental and social scientists, whose own stakes in this same analytic territory are founded, in different ways on what Peter Dickens (1996) describes as a 'crucial distinction...between material processes and relations on the one hand and our understandings of, and communications about, those processes on the other' (p. 83). Here,

'external' nature can, and must, be recognised as ontologically separate from the 'natures' of social representation in order to sustain the possibility of (and their own pretensions to) a singular analytic diagnostic truth - an account of society's relationship with nature that corresponds to a real, objective world - which offers 'real' criteria for intervention to improve the world.

There is undoubtedly a measure of caricature in this 'embattled' depiction of the analytic treatment of 'nature' in geography and other disciplines. Accounts that get lumped together into the 'social constructionist' and 'realist' categories are much more diverse than is suggested here, for example, the textual emphasis of the deconstructionist, 'whose main focus is the 'internal', and whose basic terms or objects are symbolic representations' (Thrift, 1996: 6) as against the performative emphasis of various theories of embodied practice, 'in which the focus is 'external', and in which basic terms and objects are forged in a manifold of actions and interactions' (*ibid.*). Equally, only the crudest of 'natural realist' accounts refuse to recognise the contingency of knowledge claims about 'real-world' entities and processes. As Sarah Whatmore (1999) emphasises, this label eclipses the wealth of 'Marxist-inspired analysis (dialectical materialism), critical realism, and political ecology to name a few' (p. 24).

Yet, for all the diversity and declared antagonism, these analytic formulations which pass for 'constructionism' and 'realism' are similarly premised on the acceptance, however unrecognised, of the *a priori* separation of nature and culture/society. For both sides of the 'nature' debate this categorical insistence on an either/or, constructionist/realist approach to the question of nature itself echoes the binary mode of thinking that sets up an opposition between 'the natural' and 'the social' as the absolute and only possibilities in the purified world of modernity. Modernity has been fundamentally concerned to purify the things of the world according to the magnetic poles of the 'natural' and the 'cultural' or 'social', the 'real' and the 'represented'. As Bruno Latour has put it:

Critical explanation always began from the poles and headed toward the middle, which was first the separation point and then the conjunction point for opposing resources...In this way the middle was simultaneously maintained and abolished, recognised and denied, specified and silenced...How?...By conceiving every hybrid as a mixture of two pure forms.

(Latour, 1993: 77-8)

The spirit of Bruno Latour's refusal of denunciation allows attempts to exercise a both/and (as opposed to either/or), or a 'well why not?' narrative structure (Michael, 1996: 50). There is nothing intuitively original about such a standpoint, but social constructionism 'turned upon itself' so to speak, does open up some further avenues for exploration, specifically, a consideration of the constitutive role of the 'nonhuman' and 'non-social'.

re-enter geography as 'hybrid geographies'

Over recent years there has been mounting unease about the ways in which geography as a discipline has built this binary division between 'nature' and 'culture' into its descriptions and explanations of the changing world. This unease with an un-reflexive prioritisation of the social stems from several different concerns, not least the incapacitating effect this binary has on the contribution that geography can make to

informing more sustainable living practices, what Bruce Braun and Noel Castree (1998: xi) describe as analytical and political hope in a world faced with the urgent task of building alternative survivable futures. Earlier, Chris Philo (1991) argued that there is a need to recapture the ability to speak about questions of the environment in terms of the *social construction of nature*. This links, for Philo, with the theme of 'delimiting the human' in terms of western attempts at distinguishing between natural and human, with 'human' as white and male, or in terms of human chauvinism towards non-human beings. Increasingly, this unease centres on the growing *re-cognition* of the intricate and dynamic ways in which people, technologies, organic beings, geophysical processes and discursive codes are woven together (Braun and Castree, 1998; Latour, 1993, Whatmore, 1999b) in the fabrics of everyday living. This places in question the autonomy of 'culture' and 'nature'.

There are many ways in which the social construction of nature is worked out. In an innovative rethinking of Marxist theories of nature, Noel Castree (1995, 1996) and Bruce Braun and Noel Castree (1998) (who acknowledge the important work of people like Donna Haraway, Bruno Latour) sympathetically criticise Neil Smith's (1996) 'production of nature' thesis because it loses sight of nature's materiality, ontological existence, and causal efficacy; but also drawing on cultural studies of the sociology of scientific knowledge, Castree and Braun (1998) argue that the supposed facts of produced nature never speak for themselves, but are constructs with material and political causes and consequences, in a difficult synthesis. Castree and Braun (1998) argue that nature is an historically discursive product and that the supposed distinction between thought and the real is a distinctive western product.

We have outlined some analytical and political tools available for interrogating nature at the millennium. Yet, if nature at the dawn of the twenty-first century is resolutely social this does not mean that the modern dualism between 'nature' and 'society' no longer retains a hold on our imagination. Indeed, the opposite may be the case: today we hear regularly of the 'death of nature' or the 'end of nature', and now as often as ever before 'nature' is seen as a refuge – a 'pure' place to which one travels in order to escape from society. Along similar lines, deep environmentalism shuttles between apocalypticism and melancholy, mourning the loss, or desperately seeking to preserve (or at least witness!), the last remnants of a 'pristine' nature. And yet, as Neil Smith (1996: 41) has recently reiterated, this desire to 'save nature' is deeply problematic, since it reaffirms the 'externality' of a nature 'with and within which human societies are inextricably intermeshed'. There are, to be sure, reasons to limit or regulate human interventions in specific environments which can be justified on both ecological and social grounds. But to focus on preserving a nature that 'excludes' humans is today a self-defeating strategy – it is, as Smith argues, to save something that is no longer recognisable, if it ever was, while at the same time shifting attention from some of the most pressing and interlinked social and ecological problems that face late capitalist and technoscientific cultures.

(p. 33-4)

Braun and Castree go on to claim that 'the crucial issue, therefore, is not that of policing the boundaries between 'nature' and 'culture' but rather, of taking responsibility for how our inevitable interventions in nature proceed – along what lines, with what consequences and to whose benefit' (p. 34). As Neil Smith (1996) explains, we need a 'political theory of nature':

one which expresses the inevitability and creativity of our relationships with nature;
which recognises the destructive dynamics embodied in capitalist modes of production;

which accounts for how relationships with nature are differentiated according to gender, class, race, and sexual preference; which accepts the implausibility of a nature 'autonomous' from culture; and which finally, helps us unlearn the 'instinctive romanticism' which pervades treatments of nature in bourgeois and patriarchal society.
(p. 49)

As David Harvey (1996) suggests, 'the intertwinings of social and ecological projects in daily practices as well as in the realms of ideology, representation, esthetics, and the like are such as to make every social (including literary or artistic) project a project about nature, environment, and ecosystem, and vice versa' (p. 189).

The intention of Braun and Castree (1998) and others is to begin the task of developing a form of analytic work directed towards constructing survivable futures at the dawn of the twenty first century and find hope in theories that eschew a nature-society binary and instead insist on seeing the two as continuously constituted through the other – nature made artifactual, just as society is made natural. As they suggest, the costs of retaining the dualism have become too high; as Bruno Latour (1988, 1993) claims, too much is left unseen. This analytic task also needs to be started in [geography and environmental] education.

My purpose in this chapter has been to refuse the binary terms of engagement with the question of nature, and to instead, following Donna Haraway (1991) and Bruno Latour's (1993) lead to work towards understandings of *being* in the world whose geometries, paradigms and logics breakout of binaries...and nature/culture modes of any kind (Haraway, 1991: 129). This 'hybrid enterprise' as Whatmore (1997) calls it, is of course easier said than done. It has begun to take form in human geography with ongoing efforts to rethink the humanist assumptions within the discipline and to join others in exploring ways of recognising and accommodating the presence of non-humans [whether 'natural' or technological] in the worlds we inhabit. Such a 'hybrid' enterprise as Whatmore (1997) has called it, based on the work of Latour and Haraway, is concerned with the living fabrics rather than the abstract spaces of social life. At their most basic, these hybrid or heterogeneous geographies imply a radically different understanding of 'who' [what] constitutes the worlds 'we' inhabit.

It is the development of new understandings of life that do not simply support entrenched nature/society, human/non-human divisions, but which seek to value and scribe the heterogeneous geographies of life. It articulates a position where we humans can no longer hide behind the binary categories that have so successfully shielded us from forms of corporeal responsibility to the non-human realm, it forces us to face up to a suddenly enlarged community that is no longer 'other' (Whatmore, 1999b: 270); a constituency which is very much bound up in the shaping of the business of [our] everyday living (ibid.).

Environmental educators particularly need to rethink their location in the 'modernist-postmodernist' educational project if they are to share a concern for tracing the 'worldly emergence' of nature in specific, historical practices; how nature is rendered intelligible in certain ways and not others, and how through an

engagement with the ideas of nature it is possible to explore important and emerging sites where nature is being remade at the millennium with considerable social and ecological consequences.

Charles Taylor (1992, cited in Bonnett, 2000; 599) has suggested that our proper stance towards the world should be regarded as neither anthropocentric nor ecocentric and may best be described as *human-related* but not *human-centred*. 'This approach arises from a refocusing on the idea of human consciousness as the place where things presence and the way in which they therefore necessarily show up against, and in the light of, human concerns and involvements. It is a reciprocal relationship between human motives and the disclosure of otherness. So human beings are necessary participants in, but not in control of, the showing up of things. Human beings *enable*, but do not *produce*, in the sense of being 'sole authors'. And they are themselves precisely through participating in this disclosure of otherness' (Bonnett, 2000: 599). It has been implicit throughout the chapter that there are different senses of 'nature' and that therefore there is not one right relationship, above and beyond a basic attitude of caring. What nature is, and what is fitting relations with it, remain open questions, responses which are to be sensed *in* the relationship.

My broad commitment is to what Massey *et al.* (1999: 12) call 'relational thinking'. 'Thinking relationally is, in part, an attempt to reimagine the either/or constructions of binary thinking (where the only relations are negative ones of exclusion) and to recognise the important elements of interconnection which go into the construction of any identity' (*ibid.*). My argument is that 'nature' and 'culture/society' are complexly intertwined entities; and that their seeming separation is attributable not to their distinct ontologies, but to the great deal of purificatory work that makes them appear so (see Latour, 1993). Sarah Whatmore has shown how it involves, not the establishment/recognition of links between preconstituted 'things', but the relational conceptualisations of entities themselves. She argues for an understanding of the world through the real making of the networks through which it is, she argues, constructed; and that entities themselves are precarious achievements.

Relational thinking denies the efficacy of representational models of the world, whose main focus is the 'internal', and whose basic terms or objects are symbolic representations. Instead, it is committed to non-representational models of the world in which the focus is 'external', and in which basic terms and objects are forged in a manifold of actions and interactions (Thrift, 1996: 6). Some of the main tenets of non-representational models of the world are:

1. social practices constitute our sense of the world
2. it is concerned with thought-in-action, with presentation not representation
3. it is concerned with thinking with the entire body, it valorises all the senses
4. it invites a degree of scepticism about the 'linguistic turn', suggesting that this turn has too often cut us off from much that is most interesting about human practices, most especially their embodied and situated nature

5. non-reductive explanation – which is really description - if we give it the right place in our considerations
6. modest theory – theory with a lighter practical touch – which is intent on seeking a relational rather than representational understandings. Not then, as already fully developed individuals, to discover what something is, but different possible ways in which we might relate ourselves to our surroundings

The focus, then, is on social practice, that is on the situated interdependence of life. This is to acknowledge a line of thinking which stretches from the early Heidegger and the later Wittgenstein, through Merleau-Ponty to most recently Bourdieu, de Certeau and Shotton. Each of these authors is concerned to get away from Cartesian intellectualism, with its understanding of being as a belief system implicit in the minds of individual subjects, and return to an understanding of *being* as the social with which we are in contact by the mere fact of existing and which we carry with us inseparably before any objectifications (Merleau-Ponty, 1962: 362, quoted in Thrift, 1996: 9). In this 'view', being is not an entity but a way of *being*.

Summary

Recent attempts have been made to move beyond the dualism of the culture-nature opposition. But, overturning the organising categories, both shaping sociological and educational thought/theory and research, and restructuring everyday common-sense contexts of thought will not be easy.

In recent years academic geographers and social theorists have expressed concern about the conceptualisation of 'nature' and 'culture'. While the relationship between different kinds of educational practice can be difficult, I maintain that it is essential to connect recent analytic work in the university with teaching in educational settings.

There is a need to emphasise the intricate and dynamic ways in which people, organisms, geophysical processes and technologies are woven together in the making of spaces and places/environments. Some of the most important currents in this rethinking of the 'human' and 'natural' perhaps give a flavour of things to come.

One of these currents is connected with showing that the idea of nature as a pristine space 'outside society' is an historical fallacy. This idea remains pervasive today and it is difficult to recognise it as a particular and contestable way of seeing the world. Geography has already begun to recognise the ways in which the presence of native peoples was actively erased from the landscapes that came to be seen as 'wilderness' in colonial European eyes, and which are today perceived by many environmentalists as remnants of 'pristine' or 'first' nature. Likewise, nature tends to be mapped onto spaces designated as 'rural' or 'national parks' or 'the countryside', and 'wildlife', the embodiment of a purified nature, is commonly associated with those most rarefied of spaces designated 'wilderness', even 'deserts' or 'rainforests'. This co-incidence between 'wild' plants and animals (species) and the wild places they inhabit (habitats) pervades western

environmental sensibilities. And 'wild' animals and plants, whose designation depends on their being somewhere else, find their place in the world less than secure.

This idea is powerfully evoked, for example, in the protocols of global environmental management, which attempt to conserve 'nature' by means of territorial archetypes – like biodiversity reserves, that enact a 'natural' blueprint of 'indigenous species' within 'natural habitats'. Similarly iconographic landscapes like 'the rainforest' reinforce the place of nature, and are increasingly framed by/as their televised sites of struggle. Ignorant of their ephemeral status as 'representations', such imagined spaces all too readily become purified in their name through the sometimes violent removal of people, animals and plants that find themselves on the wrong side of the line. The expert knowledges and the moral choices threaded through these natural spaces and communities may be better disguised than is the case for the celebrated creatures like dolly the sheep, but they are none the less crafted for that.

The scientific manipulation of animals in the name of wildlife conservation – from the reproductive technologies of captive breeding, to those of electronic monitoring and population management in the 'wild' – is a scientific presence, all too obvious, in the landscapes of wildlife that are presented on our TV screens and within policy discourses. Cross-species embryo transfer to reproduce endangered animal species is now a common practice. If nothing else such practice raises a question about the nature of 'nature'.

A second and currently contentious area of focus against the rain of the nature-culture binary is trying to come to terms with the ways in which the seemingly hard and fast categories of human, animal and machine are becoming blurred. This blurring is being achieved by technologies like genetic engineering and artificial intelligence which are seen to recombine the qualities associated with these categories in new forms, such as transgenic organisms, genetically modified plants, and body or bionic enhancement and the like. In these reconfigured spaces of 'nature' and 'human nature' the body is emerging as an important site for geographical research. Questions are now being asked today which children can understand: where does nature end and culture start for dolly the sheep? Is this genetically modified burger safe to eat?

And of course plants and animals have been caught up in socio-technical networks with 'humans' for well over 30,000 years, which unsettled the categorical boundaries between the 'wild' and the 'cultivated' long before we started to insist on them.

We need to open up the question of 'nature' and the ways in which it has been [intellectually] constructed and the enablements and effects of such construction. We also need to rethink the words we use with children. 'The heterogeneous or hybrid geographies that I have highlighted above unsettle this coincidence of the things/spaces of nature fixed somewhere, always at a distance, and alert us to a world in flux in which wildlife emerges within the routine, interweavings of people, organisms, and technology as these configure the partial, plural and sometimes overlapping time/spaces of everyday living...Refusing the

purified spaces of nature and society requires an acceptance of the world as it is – an already inhabited achievement of heterogeneous social encounters, where as Donna Haraway reminds us, ‘all the actors are not human and all of the humans are not ‘us’ however defined (1992: 67)’ (Whatmore, 2000: 268). Working with a relational conception of social life means looking again at the spatial organisation and ethical contours of agency and power within hybrid networks. At the very least a relational conception of social life asks us to look again at how and where we draw the line between culture and nature and to recognise that this densely and diversely populated planet is a much more unruly place than these categories admit. As part of nature we cannot study ‘it’ as an external observer. It emphasises that relations encompass much more than scientific knowledge and rational, utilitarian argument; moral, aesthetic emotional and local ways of knowing and valuing are equally significant. The way we discern nature becomes a matter of creative responsibility and a fundamental environmental education issue.

Appendix 1

The table below summarises the main phases of my research studentship at Nottingham Trent University and places the research project and its development into a wider context. Sections highlighted in bold outline the research project and its activities.

Year 1 April 1993-April 1994	
April 93-April 94	BAA/Nottingham Trent Teaching Through Controversial Issues Project Writing and trialing of learning materials and writing of handbook for publication
Sept 93-April 94	Part-time teaching University of Wolverhampton: BA/BSc/B.Ed Geography and B.Ed/PGCE Geography Education
January 94-April 94	MA Environmental Education Through Action Inquiry Writing of validation document and validation of the programme
January 94 onwards	Draft versions of PhD research proposal for submission to Research Committee and discussion with supervisors Writing initial conference papers and publications about environmental education, working with BAA and setting out my theoretical position at the time
Year 2 April 1994-April 1995	
April 94-July 94	Invitation to schools to participate in research. Finding/establishing a research group
April 94	CARN Conference Birmingham and London Guildhall University Conference papers
April 94-June 94	Part-time teaching University of Wolverhampton continues
May 94-September 94	Promotion/advertising/recruitment for MA programme
July 94	B.Ed In-service programme (for overseas students) University of Wolverhampton Summer School Hong Kong. Start IRGEE paper
September 94	Association of Teacher Educators in Europe (ATEE) Conference, Charles University, Prague paper
September 94-April 95	PhD research project: Holly Hill County Primary School
September 94-April 95	Writing of MA Environmental Education Distance Learning Study Guides
Sept 94-April 95	MA Environmental Education Tutor
September 94-April 95	Part-time teaching University of Wolverhampton continues
Feb and March 95	WWF Reaching Out Seminars, Castleton, Derbyshire Suzanne and RF report on research
February 95-May 95	Writing of taught doctorate modules
Feb 95-May 95	Writing of Environmental Education Association of South Africa (EEASA) conference paper
Year 3 April 1995-April 1996	
April 95-July 95	PhD research project: Holly Hill County Primary School
April 95-June 95	Part-time teaching University of Wolverhampton continues
April 95-July 95	Writing of MA Distance Learning Study Guides
April 95-July 95	MA Environmental Education Tutor
April 95-Dec 95	Writing of chapter in Monitoring Change in Education: Environmental Issues in Education
July 95	EEASA Conference, Durban, South Africa
July 95	B.Ed In-service programme (for overseas students) University of Wolverhampton Summer School, Wolverhampton
Sept 95	CARN Conference Nottingham Trent University Suzanne and RF paper on collaboration
Sept 95	Symposium on teacher professional development, South Bank University paper

Sept 95-April 96	PhD research project: Holly Hill County Primary School
Sept 95-April 96	MA Environmental Education Tutor
Sept 95-April 96	taught doctorate tutor
Sept 95-April 96	Part-time teaching University of Wolverhampton continues
April 1996	End of research studentship
April 96-July 96	PhD research project: Holly Hill County Primary School
April 96-July 96	MA Environmental Education Tutor
April 96-July 96	taught doctorate tutor
April 96-June 96	Part-time teaching University of Wolverhampton continues
July 1996	Left Nottingham Trent University
Sept 96	Full-time permanent position at University of Plymouth School of Education
Sept 96-Dec 1996	Final discussions with Suzanne

Appendix 2

	← Closed	Framed	Negotiated →
Content	Tightly controlled by teacher. Not negotiable	Teacher controls topic, frames of reference and tasks; criteria made explicit	Discussed at each point; joint decisions
Focus	Authoritative knowledge and skills; simplified, monolithic	Stress on empirical testing; processes chosen by teacher; some legitimation of student ideas	Search for justifications and principles; strong legitimation of student ideas
Students role	Acceptance; routine performance; little access to principles	Join in teacher's thinking; make hypotheses, set up tests; operate teacher's frame	Discuss goals and methods critically; share responsibility for frame and criteria
Key concepts	'Authority': for the proper procedures and the right answers	'Access': to skills, processes, criteria	'Relevance': critical discussion of students' priorities
Methods	Exposition; worksheets (closed); note-giving; individual exercises; routine practical work. Teacher evaluates	Exposition, with discussion eliciting suggestions; individual/group problem solving; lists of tasks given; discussion of outcomes, but teacher adjudicates	Group and class discussion and decision-making about goals and criteria. Students plan and carry out work, make presentations, evaluate success,

The participation dimension

Source: Barnes *et al.*, (1987)

Stage of teaching and learning	Closed	Framed	Negotiated
Questions	Questions not explicit or questions remain the teacher's questions	Questions explicit, activities planned to make pupils ask questions	Pupils decide what they want to investigate under guidance from teacher
Data	Data selected by teacher, presented as authoritative, not to be challenged	Variety of data selected by teacher, presented as evidence to be interpreted	Pupils are helped to find own data from their sources in and out of school
Interpretation	Teacher decides what is to be done with data, pupils follow instructions	Methods of interpretation are open to discussion and choice	Pupils choose methods of analysis and interpretation in consultation with teacher
Conclusions	Key ideas presented, generalisations are predicted, not open to debate	Pupils reach conclusions from data, different interpretations are expected	Pupils reach own conclusions and evaluate them
Summary	The teacher controls the knowledge by making all decisions about data activities, conclusions. Pupils are not expected to challenge what is presented	The teacher inducts pupils into ways in which geographical knowledge is constructed, so that they are enabled to use these ways to construct knowledge themselves. Pupils are made aware of choices and are encouraged to be critical	Pupils are enabled by the teacher to investigate questions of concern and interest to themselves

A framework for looking at styles of teaching and leaning in geography

Source: Roberts, 1996: 240

Acronyms and Abbreviations

ANT	Actor Network Theory
CARE	Centre for Applied Research in Education
BGPSD	British Government panel on Sustainable Development
CARN	Collaborative Action Research Network
CCW	Curriculum Council for Wales
CEE	Council for Environmental Education
CERI	Centre for Education, Research and Innovation
DES	Department for Education and Science
DETR	Department of the Environment and Transport
DfEE	Department for Education and Employment
DoE	Department of the Environment
EDET	Environment and Development Education Training Group
EFS	Education for Sustainability
ENSI	Environment and Schools Initiative
ESRC	Economic and Social Research Council
FoE	Friends of the Earth
HMI	Her Majesty's Inspectorate
IEA	Institute of Economic Affairs
IEEP	International Environmental Education Programme
INSET	In-service Education and Training
ITT/E	Initial Teacher Training/Education
IUCN	International Union for Conservation of Nature and Natural Resources
LEA	Local Education Authority
NAEE	National Association for Environmental Education
NCC	National Curriculum Council
NFER	National Foundation for Educational Research
NGO	Non Government Organisation
OECD	Organisation for Economic Co-operation and Development
OFSTED	Office for Standards in Education
PSHE	Personal, Social and Health Education
QCA	Qualifications and Curriculum Authority
SCAA	School Curriculum and Assessment Authority
SSK	Sociology of Scientific Knowledge
TVEI	Technical and Vocational Initiative
UK	United Kingdom
UN	United Nations
UNCED	UN Conference on the Environment and Development
UNED-UK	United Nations Environment and Development – UK
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
USA	United States of America
USSR	Union of Soviet Socialist Republics
WCED	World Commission for Environment and Development
WCS	World conservation strategy
WWF	World Wide Fund for Nature

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