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Education for the Environment: Towards Teacher Empowerment

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Abstract

The work of this thesis involves an exploration of teachers' practice in environmental education in New Zealand schools, conducted between 1999 and 2002. Some new theorising is conducted in response to the problems faced by teachers. This seeks to reconceptualise the way we think about environmental education in schools. The purpose of this is to provide a theoretical framework that assists teachers to rethink their practice and, as a result, be empowered to act *for* the environment.

The thesis begins by providing a general background to the field of environmental education and by setting this in the socio-political context of New Zealand from the early 1980s until the present. The research process is described, and theorised using Problem-Based Methodology. The work then proceeds to report on the research with teachers in schools that occurred in a number of phases. It emerges that environmental education occurred in only a minority of cases. School contexts and educational structures appeared to place major barriers in the path of teacher innovation and these seem to increase with school size. Teachers that do begin sound practice appear to have strong values and a theoretical background that informs their work.

In response to the complex barriers to improved environmental education practice, Problem-Based Methodology is suggested to provide an inadequate platform for addressing the issues because it is restricted to addressing micro level problems in schools. Drawing on the philosophy of critical realism that proposes three levels of reality, a Critical Problem-Based Methodology is proposed. This involves three loops of critical reflection. To support this an issues matrix that contains a sociological analysis of schooling and draws heavily on curriculum theory is developed. A reconsideration of the environmental education literature is then undertaken in the light of these proposals.

The thrust of the thesis is that environmental education lacks a substantive engagement with sociology or curriculum theory and the proposals here seek to address that. It is proposed that triple loop reflection assists a better description of the problems of poor progress in the field. It is argued that many educators have a faith in schooling that is not justified by evidence and have failed to engage at a political level. It is concluded that unless engagement occurs at the three levels proposed in this thesis, and a deeper engagement with educational theory supports this, things are unlikely to change.

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This thesis exists because a number of teachers agreed to be interviewed about their practice as part of their commitment to act for the environment. I have accepted their help as part of a collective endeavour in trying to understand how we might learn to improve what we do in this critical area. Because these teachers are anonymous it is difficult to publicly record the depth of my gratitude to them. That many of them struggled to develop programmes in their schools has provided the insights that are central to this research and has helped understanding of how schools constrain our efforts. For these teachers in particular, submitting to the interview process over a sustained period has shown great dedication. It is the range of descriptions that the teachers, together, have provided, that establishes the foundation for the thesis. I would like to record my deepest thanks and appreciation here and trust that their help will be remembered throughout the work.

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In the years since Palmerston North College of Education merged with Massey University and the journey to this point began, the cycles of life have continued. The deaths of both my parents, my colleague David Adams, and of other friends and family has been more than discouraging. The support of the people mentioned above has kept my focus on this project at important times.

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When the doctoral process is completed, I hope that the work of this research has some lasting value. I have undertaken it in order to try to make a difference. My deepest hope is that the work will result in some improved understandings of schools and of transformative practice in and through schooling. I thus hope that I can show my gratitude to all those people that have supported me by making a small contribution to a better future, in the same way that we repay our debt to our parents to our children.

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CHAPTER ONE: Introduction

1.1 THE THESIS

It is important to make clear from the outset of this work that it makes no pretence at being values free or neutral. The title of the work and the direction of the research are fundamentally values laden. The research question that forms the title implicitly announces a number of positions. In using the expression 'for the environment' a critical position related to that described by Fien (1993a) is being taken. This position implicitly asserts firstly that education is itself values laden, serving social purposes of a variety of kinds, and secondly, that active work on behalf of the environment should be one of those purposes. A range of positions is also encoded within the concept of empowerment. It implies that education for the environment is currently not widely occurring and that barriers to its enactment exist. Overcoming these barriers calls for particular energy and considered strategies. This position advocates activity aimed at a social transformation in the way that human beings treat the environment. All of these assumptions and connotations are deliberate.

The purpose of this chapter is to outline both the substance and the structure of the thesis. The central theme is that quality environmental education is not occurring in schools even when support is provided. In response to the apparent impasse in developing improved practice, a more accurate description of the school context is developed drawing on the sociology of education and on curriculum theory. Following from this, and linked to the ontological position developed within the philosophy of critical realism, a theoretical matrix for examining the nature of environmental education in schools is developed as an heuristic that might assist educators in critically reflecting on their practice. In developing this theoretical matrix, the world view of the researcher and the values and events which informed and accompanied the development process are kept in focus as an essential part of the research data as will be elaborated within the thesis.

The research began with a number of related activities in which different groups of teachers who had participated in environmental education development activities were interviewed following that participation. The work was conducted in a number of phases, each involving different people and circumstances.

The first phase followed beginning teachers for two years after their involvement in environmental education within their pre-service teacher education programme. The second monitored experienced teachers involved in environmental education workshops for the year following that involvement. The third questioned teachers from the phase one group after a similar workshop intervention, while in the final phase, groups of teachers conducting exemplary practice and working in special circumstances that illuminated the study, were interviewed.

The conclusion from this work is that teachers do not readily transfer what they have covered in development activities to their daily practice. Where they do, three sorts of circumstances may be observable singly or in combination: these teachers have strong environmental commitment; they work in small schools; or they are able to harness external support to assist them. Three realisations emerge from this research. Firstly, that the New Zealand school context contains a strong set of barriers to environmental education practice. Secondly, that a strong level of commitment is required to overcome these barriers. Further, the bigger the school, the more difficult the constraints are to overcome, and the more expertise and the stronger the commitment needed to surmount them. Thirdly, even when these barriers can be overcome, the environmental activities undertaken are often superficial and do not persist. It appears that the deeper implications and intentions of environmental education do not become part of practitioner thinking as a result of short development activities.

This gap between environmental education intentions and practice is not restricted to New Zealand. There are several places in the literature where the gap between rhetoric and reality is acknowledged. Further, while the literature contains criticism of commonly advocated approaches to environmental education, few specific alternatives are provided to help confront the difficulties. In response to this literature and the research findings within this thesis, it is suggested that the field of environmental education in general lacks adequate approaches for addressing the problems of poor uptake in formal schooling. A significant cause of this, it is argued here, is that teachers have an inadequate theoretical background from which to grapple with the issues presented by environmental education. This is not surprising given the miniscule profile assigned to it in teacher education and in schools. There is a related issue here in that the environmental education literature generally lacks a sociological analysis of schooling which might assist teachers. Few sources mention the role of schools in hegemonically reproducing existing social relationships or acknowledge that the foundational goals of environmental education seek to transform society and thus to challenge the very role of schooling within it.

This thesis contributes to bridging this gap. With this intention, an analysis of education is developed that assists educators to confront a range of dilemmas and compromises that they encounter in schools. These range from articulating their own environmental philosophy to making compromises about the structure of curriculum and the role of schools in society. It is argued that unless teachers confront these contradictions and forge their own coherent set of theoretically informed compromises to guide their practice, they will be forced to adopt those embedded in the present curriculum and existing relations of schooling. This theoretical framework is linked with the notions of teachers as transformative intellectuals who can confront the structures that shape school practice and strive to change them.

The work within this thesis is not limited to the micro-level of teachers' work in schools. It also requires an understanding of events at the macro level that shape teachers' working lives. This involves an acknowledgement of the fundamentally political nature of education in general and of environmental education in particular.

In responding to this macro-level challenge, recommendations are made that go beyond empowering teachers in a personal sense. It is difficult for teachers to reshape education from the micro-level. Work that addresses the nature of curriculum, and in particular that advocates the formalising of an environmental education mandate for teachers is required. To support this, wider political pressure aimed at general social change is needed. This requires action by educators that reaches beyond the classroom.

What is significant about this thesis is that all these ideas are linked together by the comprehensive theoretical matrix that is positioned within a robust research methodology and an understanding of the nature of reality provided by critical realism. This provides a defensible platform for action for the environment at a range of levels. Within this framework the notion of empowering teachers as a single strategy for improving the quality of environmental education is seen as an insufficient response to the impasse mentioned above.

1.2 THESIS STRUCTURE

Chapter Two of this thesis begins by providing a background summary of the field of environmental education and identifies the position taken within the research on a number of contested issues within this field. Chapter Three reviews the socio-political context within New Zealand leading up to and during the period of the research. This

provides a history of the place of environmental education within the curriculum and thus gives a wider contextual background to the study.

Chapter Four goes on to describe the methodological approach that provided a starting point for theorising the empirical research and the subsequent development of this methodology, while Chapter Five provides a description and chronology of the research process undertaken and attempts to capture not only the theoretical perspectives which informed it, but also something of the reflexive nature of the project, the way it evolved and the role of the researcher within that process.

The interview data gathered in the first and most extensive phase of the research is reviewed in Chapter Six, and Chapter Seven elaborates the data collected in the later phases. Chapter Eight then develops a methodological critique in response to the issues raised by the data in the context of the methodology that informed the study, in particular to the apparent impasse facing the development of environmental education in schools. An analysis of critical realism as an underpinning ontology is conducted in Chapter Eight and in the light of this, an elaborated and modified methodology is theorised to support the expanded scope of the work. Chapter Nine begins the process of expanding that scope by exploring the sociological analysis that is suggested as absent from the field of environmental education and that, it is argued, must be taken into account in addressing the impasse facing the field.

Some new theorising is undertaken in Chapter Ten in response to the research data and the insights gained from sociological and curriculum theory. This develops a theoretical matrix that captures the complexity of schools and the multiple compromises made within education in general. It is argued that educators must firstly understand their own position with regard to these multiple compromises in order to respond to the alternative compromises happening around them. The matrix provides a means of understanding one's own position, for visualising it within the layered reality suggested by critical realism, and for seeking opportunities to work for change.

Chapter Eleven then proceeds to reconsider the environmental education literature in the light of both the research data and this new theorising. Within this chapter it is suggested that some of the gaps and problems which recur in the literature, might be resolved by confronting the sociological issues articulated in Chapter Nine using the matrix described in Chapter Ten. The methodology developed to inform them, Critical Problem-Based Methodology supports this process. These approaches are not found in the literature.

In Chapter Twelve the approaches developed in the thesis are brought to focus in the New Zealand context and some conclusions and recommendations for future action in response to the research are proposed in drawing the thesis to a close.

In general, it is my contention that the field of environmental education is under-theorised. Very few environmental educators seem prepared to face up to the clash between the goals of their field and current social relations. This clash arises from the implications for fundamental social and political change contained within those goals. Few theoretical constructions have thus been developed which provide ways forward in meeting this challenge. Central to this thesis is the development of the theoretical matrix as a support for reflection that will allow educators to grapple with the sociological and curriculum issues that shape the work of schools. Having clarified these issues it is hoped that educators will be able to develop the confidence and skill to act for change. It is argued that this is one of a range of approaches that must also reach beyond the individual teacher in the classroom and confront deeper educational structural and political issues at the three levels of reality arising within critical realism.

In this thesis I attempt to address some recurring issues in the field of environmental education. The critical realist view of the world described is argued to bridge some of the unhelpful tensions between so called research 'paradigms'. Further, Critical Problem-Based Methodology provides potential for linking micro-level action with macro-level social understandings in a way that is both purposeful and theoretically robust. Understandings from the sociology of education are linked to the literature from environmental education as a way of making progress in the field. Finally, separate reflection on the empirical level of daily experience, the material level of institutions and structures, and the deeper level of the mechanisms and causes that shape the other two is advocated. This approach is suggested to assist action by clarifying the level within which a particular aspect of the environmental education impasse resides, and therefore facilitating responses that target that problem. The result is a comprehensive yet articulate approach to environmental education that can be applied in a range of contexts.

CHAPTER TWO: Backgrounding the field

2.1 INTRODUCTION

That the earth faces a global ecological crisis caused by human behaviour is now so commonly acknowledged that it scarcely requires elaboration. It is not in contention within the field of environmental education that the way we treat the environment is inextricably linked with our social, political and economic systems. These links are clearly identified in the foundational documents within the field but are not always acknowledged by writers and practitioners. Authors such as Roddick (2001), Suzuki and Dressell (1999) and Faber and O'Conner (1993) are among many who provide detail of the ways in which the media, corporate business and governments work symbiotically to maintain damaging patterns of behaviour. As the authors above argue, these affect the ecology and life support systems of the planet and show little care for the welfare of vast numbers of the human population.

In his book, *The Unconscious Civilisation*, Saul (1997) reviews the way in which industrial bureaucracies have isolated themselves from history and from economic realities, serving powerful interest groups with little regard for the common good. In this context, trying to change the social and political mechanisms which determine our relations with nature, is extremely problematic. Environmentalists in general, even the most radical as Suzuki and Dressell (1999) point out, put faith in democratic systems to bring about change and often see education as the means for achieving this. International declarations on the environment share this faith as will be described in following sections. Building on the emphasis on education contained in those declarations, this thesis focuses on environmental education in the context of New Zealand schools.

The field of environmental education is a complex one and in order to understand the positions taken in framing the research question in this thesis some familiarity with the history and substance of the discipline is required. This chapter reviews some of that complexity. It begins with a general summary of the history and scope of the field. This is followed by a progressive elaboration of the substance of a number of debates identified within it. The research position within each of these debates is clarified when appropriate because these shape the development of the research. This summary of the field of environmental education thus provides the background against which the research question central to this thesis arose. The research question

itself comes into focus in the closing section in this chapter. As further background, Chapter Three then elaborates the wider social context in which the research and subsequent theorising occurred.

2.2 BACKGROUND TO THE FIELD

2.2.1 The Global Picture

Environmental Education, like Environmentalism is not a definitive term. Instead, it can be thought of as an umbrella sheltering a range of positions and perspectives which overlap to greater or lesser degrees. Because the term is used so generally and with multiple and often contested meanings, as Lambert (2001) makes clear, it is difficult to crystallise its origins and such an effort is of questionable value as the understandings and meanings have not remained static. Those origins are briefly reviewed in order to provide a sense of background to the field with this caution in mind.

Roberts (1993) considers that the development of environmental concern began in the 19th century, citing Charles Darwin and Albert Schweitzer as contributors. He also places considerable emphasis on the work of Aldo Leopold whose posthumously published work, *Sand Country Almanac* (Leopold, 1966, first published 1953) is considered to be the "holy writ of American conservation" (Dubois, 1972, in Roberts 1993, p. 83). Gigliotti (1992) suggests that Earth Day, 1970, might be the starting point for the modern environmental era, although the journal he writes in was founded a year previously. Gough (1997), in her comprehensive book, looks no further back than the growing awareness of environmental degradation that emerged throughout the 1960s. Palmer (1998), in another text that reviewed the field at the close of the millennium, identified a range of earlier milestones including the development of field studies by Sir Patrick Geddes in the 1890s and the establishment of the School Nature Study Union in 1902, both in the United Kingdom.

Palmer suggests that the term environmental education was first used in the late 1940s when the International Union for the Conservation of Nature was also formed (Palmer, 1998). Although she cites a number of sources which are in some conflict regarding the time, place and source of this first usage, what emerges is that a number of awakenings of environmental concern, of philosophical questioning of the relationship between humans and nature, and about ways of learning, had been occurring over a considerable period. These awakenings were gathering strength leading up to the

period between 1968 and 1978 when a number of important gatherings that shaped the field of environmental education, as it is currently understood, occurred. These meetings included the United Nations Education Scientific and Cultural Organisation (UNESCO) Biosphere Conference in Paris, 1968, a UNESCO-IUCN (International Union for the Conservation of Nature) meeting held in Carson City, Nevada, 1970, and a sequence of three further international meetings initiated by UNESCO in 1972, 1975 and 1977. The first of these, the 1972 *Conference on the Human Environment* was held at Stockholm, Sweden. This conference led to the establishment of the United Nations Environmental Project (UNEP) which, with UNESCO, established the International Environmental Education Programme (IEEP) launched at the follow-up conference in Belgrade, Yugoslavia, 1975 (Palmer, 1998).

The Belgrade conference of environmental educators established a framework for environmental education that was carried forward to the third conference, attended by government officials, held at Tbilisi in the USSR, October 1977. The Tbilisi Declaration, which emerged from this conference, is considered by Palmer to be the “blueprint for the development of environmental education in many countries of the world today” (Palmer, 1998, p. 8).

In contrast to Palmer, Gough (1997) is less concerned with historical detail but instead conducts an analysis of the implications and debates that arise from the Belgrade Charter (UNESCO-UNEP, 1976) and the Tbilisi Declaration (UNESCO-UNEP, 1978) which will be briefly summarised later. Despite these ongoing issues the Tbilisi Declaration, arising as it did from an intergovernmental conference, provides a legitimate framework for environmental education that has continued to inform major events in the field since its publication (UNESCO, 1996). The goals of the Tbilisi Declaration are quoted below:

The *goals* of environmental education are:

to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;

to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;

to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

(UNESCO-UNEP, 1978, p. 3)

The third goal contains the most powerful statement, requiring changed behaviour.

This is elaborated by the content of the first two goals that suggest that changed behaviour must relate to the environment defined in social, political, cultural and natural terms and that the attributes described in the second goal are required in order to achieve this. The goals are supported in the Declaration by a set of Objectives which elaborate these attributes.

The categories of environmental education objectives are:

Awareness: to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

(UNESCO-UNEP, 1978, p. 3)

The Goals and Objectives are supported further by twelve principles and a set of ten criteria for environmental education. The aspects of these that apply at the level of school education are summarised below in Figure 2.1.

Environmental Education is directed towards establishing new patterns of behaviour by individuals, groups and society as a whole toward the environment.

Programmes should assist learners to understand the complex nature of the natural and built environments, the social, political and cultural factors that influence them and their interdependence including that between urban and rural environments.

Programmes need to develop Awareness, Knowledge, Attitudes, Skills and Commitment to participate in the solution of environmental problems.

Important in this process are positive environmental values, self-discipline, critical thinking, data interpretation and practical problem-solving skills. Influential factors in developing these abilities are:

- an approach which integrates traditional subject disciplines using real local problems, particularly in early years; develops knowledge and considers national issues whilst balancing current and historical perspectives; and
- identifying and analysing the values positions that inform behaviour while also discovering the symptoms and real causes of environmental problems;
- utilising a wide range of learning situations and approaches which stress practical activity and first-hand experience, allow learners to have a role in planning their learning experiences, making real decisions, taking action and accepting the consequences.

Environmental education should be a life long endeavour.

Figure 2.1 A summary of Tbilisi for school based education

Subsequent to the publication of the Tbilisi Declaration, the IUCN in conjunction with the UNEP and the World Wildlife Fund (WWF) released the *World Conservation Strategy* (IUCN, 1980). This document introduced the concept of sustainable development to the wider environmental vocabulary (Gough, 1997) although its origins predate this (Stevenson, 1993, refers to the concept in the work of Tanner 1974,).

In 1987 a 'Tbilisi plus Ten' conference organised by UNESCO and UNEP was held in Moscow and the Principles of Tbilisi were endorsed (Palmer, 1998). Gough (1997) contends however that this 'endorsement' artificially foreclosed on continuing discussions about the intentions of environmental education. This conference was overshadowed by the World Commission for Environment and Development report, *Our Common Future* (WCED, 1987) which "popularised" the expression 'Sustainable Development' (Gough, 1997, p. 30 and Fien, 1997, p. 21) to the extent that it has now become a slogan for governments, industry and conservation groups (Gough, 1987). As a slogan, its meaning is far from clear, but despite this the concept in the form of Ecologically Sustainable Development (ESD) was central to deliberations of the 1992 Earth Summit held in Rio de Janeiro. Huckle (1991) reminds us that this marked the twentieth anniversary of the first UN conference at Stockholm in 1972. The twenty-seven principles which inform *Agenda 21*, the deliberations of the Earth Summit (UNCED, 1992), are listed in Appendix One to allow a full perusal of the scope and complexity they contain.

Despite the rhetoric of these principles however, the decade since Rio has been marked by conflict, increasing poverty, the AIDS epidemic, increased economic competition and the proliferation of genetically modified organisms released into the environment. It has also been marked by the continued refusal of the United States of America, in particular, to act to reduce global warming. The difference between the environmental rhetoric and the reality of the world situation is one of the features of the field of environmental education. This was evident at the 2002 Earth Summit at Johannesburg where attempts to stop theorising and to act to address global poverty do not appear to have been successful.

Grappling with the reasons why this should be the case requires a sense of some of the complexities and contestations that underpin the field. Central is a world economic order that very clearly relies on the exploitation of both people and resources in the pursuit of wealth accumulation by a minority of the Earth's citizens. Suzuki and Dressel (1999) report that the richest fifth of the Earth's population command 82.7% of its wealth while the poorest fifth manage only 1.4%. Changing the behaviours that drive this inequity is generally envisioned within the field as being brought about by education and democratic processes, although very few writers in the field explicitly identify the economic order as the root cause of environmental problems. Thus, it is argued in this thesis, that a proliferation of debates on issues ranging from pedagogy, curriculum, environmental philosophies, and values indoctrination, to name a small selection, has in many ways obscured some key issues that constrain the field. Despite this, understanding some of these debates in broad terms is an essential part of

understanding the field and a résumé of some of these issues is provided in the following sections.

2.2.2 Some Complexities

Early constructions

Reviewing the field from a poststructuralist feminist perspective, Gough (1997) spends nearly forty pages on the 'historical' background of the field. She places the word 'history' in inverted commas, after Foucault, considering this word too associated with modern rationalism. She considers her review of the field in archaeological or genealogical terms. Her work focuses on the marginalisation of environmental education in Australia and the trend within the field to marginalize non-male and non-English speaking groups. Like many others whose work will be reviewed throughout this thesis she calls for different approaches.

These calls hint at a sense of bewilderment in the field, that the efforts over the last three decades have not come to grips with the issues. This is most clearly expressed by Scott and Oulton (1999). Not surprisingly, a number of tensions emerge in the literature that are not always apparent in the official artefacts discussed in the previous section.

One of these tensions is the 'genealogical' links between environmental education and science. The field was in part shaped by a significant contribution from the natural sciences and their emphasis on fieldwork. Scientists have been widely involved in identifying, monitoring and alerting the world to environmental change. Science must also take considerable responsibility for causing the problems however. Its positivist epistemology and apparently rational approach, values empirical knowledge, emphasising the measurable. The claim of objectivity made by scientists is now widely discredited (Swann, 1999). This approach has allowed science to appear neutral while often serving (through the funding of research and the rewards arising from certain kinds of research) interests that threaten the environment (Orr, 1992). Environmental educationists have recently sought more pluralist approaches, particularly ones that can accommodate non-empirical ways of knowing such as aesthetic and spiritual values, and to be sympathetic to indigenous perspectives (Oulton & Scott, 2000; Robottom & Hart, 1993). There have as a result, been clear efforts to distance the field from the environmental sciences.

Associated with this genealogical link with science there has been an intense debate on appropriate approaches to research. This has arisen in response to the tendency to

apply quantitative research methods within the field. These have been criticised by Robottom and Hart (1993) as inappropriate at the levels of both method and methodology and this issue will be visited briefly in this chapter and in detail in the methodological analysis that occurs later in the thesis.

In analysing the situation in his doctoral thesis completed in 1972, Arthur Lucas developed the notions of education *about*, *in* and *for* the environment (Gough, 1997). It has long been argued that while education *about* the environment is important and that such learning is enriched by experiences *in* the environment, it is only when action *for* the environment occurs that the goals of environmental education are met. It has been further argued (Greenall, 1987; Fien, 1988) that this action component is an essential feature of environmental education that distinguishes it from the sciences. Debates about the constitution of education for the environment and the necessity or otherwise of an action component have been ongoing and have developed increasing subtlety. Lucas' classification, predating the major declarations mentioned in the previous section, has provided an enduring conceptual tool for reviewing environmental education activities which stands outside the 'official' declarations in the field. This will be covered in greater depth in section 2.3.4.

The persistence of Lucas's description is evidenced in that it is included in the New Zealand *Guidelines for Environment Education* (Ministry of Education, 1999a) as the 'Key Aspects' of environmental education. These descriptors may serve to obscure some of the underlying tensions that exist in the field. They bypass the definitional debates that are prominent in the literature of the 1970s. Entangled within these debates was what Gough (1997, p. xv) calls the "rational hegemony of science" described above. Gough reviews environmental educational programmes concluding them to be largely science based, focusing on education *about* and *in* the environment and avoiding the difficult action components which by the early 1980s she (as Annette Greenall) and Russell Linke (both in Gough 1997) were arguing should be the dominant feature of the field. This critique of environmental education as predominantly science-based is continued by Fien (1997) who identifies the three most common activities that occur under the umbrella of environmental education as nature studies, wilderness experiences, and personal change activities that he argues are insufficient to address the goals of the field.

Values and curriculum

These tensions are paralleled by the growing recognition of the significance of social and cultural factors, affective as well as cognitive engagement with issues, and the essentially values laden nature of environmental education which emerged through the 1970s and 1980s. These issues are rendered more complex by overlaid debates on

the ways of enacting environmental education. Within these debates, organisational approaches rather than philosophical ones have been dominant (Gough, 1997). Organisational debates have surrounded such issues as the relative emphasis on content and process in pursuing environmental education goals, and whether environmental education should be seen as a separate subject or in some interdisciplinary, transdisciplinary or multidisciplinary way.

In her review of the early history of the field, Gough (1997) only occasionally reports any sociological critique within the field. She reports Stenhouse's (1977a, 1977b) concern that the environment is a social rather than educational issue and further, his view that the field contains a challenge to some of the assumptions about what schools stand for. Gough (1997) also reports an argument by Aldrich and Blackburn (1975), that environmental education offers an opportunity for significant educational renewal. Gough concludes that while there was considerable analysis of the relationship between schooling and the structure of society at this time, "few were relating" these discussion to environment education (Gough, 1997, p. 17). It is my view that in the years since, the absence of sociological analysis remains, and it is the intention of this thesis to address that absence. In particular this involves an examination of the 'new sociology of education' and a refocusing on the idea that schools are part of the apparatus of social reproduction that preserves existing social relations. If this is the case, the suggestion that school-based education can be part of the process of developing the new patterns of behaviour demanded by the Tbilisi Declaration is extremely problematic.

Emerging structure

The series of UNESCO conferences of the 1970s that culminated in the Tbilisi Declaration, added internationally legitimate structure to the field by providing goals and criteria for environmental education programmes. It is interesting to note that it was at this time, when definitional debates preoccupied the field, that much of the new sociology mentioned above was emerging,

It is Gough's opinion that the Declaration itself, prior to its later endorsement mentioned above, stifled rather than stilled a number of debates including: the domination of a "developed world" view of the environment; continued definitional problems; lack of acknowledgement of the contextual nature of definitions, environmental problems and their solutions; and a dated view of the nature of education and curriculum. Debates about implementational issues obscured some of these tensions (Gough, 1997). One of these was, and remains, the tension between calls for a new educational paradigm on the one hand, and the 'something is better than

nothing' view on the other. This issue is captured in the inaugural edition of the *Australian Journal of Environmental Education* published in 1984. In it, Robottom (1984) argues for the inclusion of an action component *for* the environment while also elaborating the challenges this poses. Walsh (1984) argues that in response to these problems a separate curriculum approach that does not demand action would be a more realistic starting point for most teachers. The issue of action *for* the environment remains vexed.

Sustainability and growing critique

While these issues remained current, the 1980s and 1990s saw the growth of two new dimensions to the field. The first of these was the concept of sustainable development which has already been 'genealogically' traced. The notion of sustainable development has often been merged into the material from Tbilisi by replacing the term "environmental education" with the term "education for sustainable development", and this expression now dominates much environmental education discourse. Much of the material relating to ecologically sustainable development (ESD) is extremely prescriptive in nature. Gough (1997) is harshly critical of the instrumental nature of much of this discourse and the absence of any consideration of the gendered world views which predominate within it.

Emerging in parallel in the environmental education literature at this time was a socially critical strand to the discipline which built on socially critical curriculum theory. A simple encapsulation of this is provided by Pepper (1987) who considers that ecological and social change must be underpinned by education which serves:

to criticise conventional wisdoms;

to explore the material and ideological bases of conventional wisdom;

to open students minds to alternative world views;

to work and live cooperatively;

to realise that humans can act collectively to shape society.

(Pepper, 1987, p. 66)

This socially critical school contains a number of writers among whom Annette Gough, Fien, Huckle, Robottom and Stevenson figure prominently. Their work stands in contrast to a less critical view emanating from North America and on occasions from Europe which is essentially liberal in nature (Sauvé, 1999; Jensen & Schnack, 1997).

Huckle (1991), for example, is reproachful of the lack of critical perspective in the field and identifies much environmental education as part of the problem rather than the answer because it fails to identify the causes of environmental problems. It thus serves to obscure the links between economic activity and forms, and the destruction that results from them.

This thesis is sympathetic to the socially critical approach. Indeed, I find it hard to imagine how educators can contemplate the content of the Tbilisi Declaration without recognising in it a demand to critically analyse, and to act to change society. There is a view of critical environmental education that suggests the approach has not worked (Walker, 1995, 1997; Scott & Oulton, 1999; Oulton & Scott, 2000). These authors begin their analyses by observing that very little has been achieved by thirty years of environmental education activity. It is one of the intentions here to respond to those criticisms by examining ways in which environmental education may be conceptualised so that it is both critical and able to be put into effective practice. This must apply in schools as they are currently constructed, improving the quality of teacher preparation in a way that empowers teachers to act transformatively. The critique of critical theory within environmental education is addressed in detail in a later chapter.

Perhaps because environmental educators attempt to work cooperatively and try to value all perspectives while maintaining purposeful dialogue and debate, a fundamental clash in world views continues to lie beneath the surface of many of the issues. It perhaps oversimplifies the field to suggest that there is a single clash involved. There is however, one fundamental clash between writers who pursue a liberal approach to environmental education and those who challenge current economic structures as being the cause of, rather than the solution to, the problem. I would again note that very few writers appear to focus on the role of schools within society or identify schools as having a role in maintaining existing social relations.

Peter Fensham, who attended the UNESCO meetings of the 1970s on behalf of Australia, articulated his view clearly in saying:

The root causes of such problems as increasing poverty, environmental deterioration and communal violence can be found in the dominant socio-economic system.

(Fensham, 1976, in Gough 1997, p. 36)

An alternative to the dominant discourse of environmental education is found in material presented to a plenary session of the N.G.O forum held at Rio de Janeiro in conjunction with the 1992 Earth Summit. This is discussed in part by Gough (1997) and provides insights into an alternative view of environmental education. (A complete version is contained in Appendix Two.) It included the following statements:

2. Environmental education ... should be grounded in critical and innovative thinking in any place or time promoting the transformation and reconstruction of society.

3. Environmental education is both individual and collective. It aims to develop local and global citizenship with respect for self-determination and the sovereignty of nations.

4. Environmental education is not neutral but is values based. It is an act for social transformation.

5. Environmental education must involve a holistic approach and thus an interdisciplinary focus in the relation between human beings, nature and the universe.

7. Environmental education should treat critical global issues, their causes and interrelationships in a systemic approach within their social and historical contexts. Fundamental issues in relation to development and environment, such as population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, should be perceived in this manner.

10. Environmental education should empower all peoples and promote opportunities for grassroots democratic change and participation. This means that communities must regain control of their own destiny.

11. Environmental education values all different forms of knowledge. Knowledge is diverse, cumulative and socially produced and should not be patented or monopolized.

13. Environmental education must stimulate dialogue and cooperation among individuals and institutions in order to create new lifestyles which are based on meeting everyone's basic needs, regardless of ethnicity, gender, age, religious, class, physical or mental differences.

15. Environmental education must integrate knowledge, skills, values, attitudes and actions. It should convert every opportunity into an educational experience for sustainable societies.

16. Education must help develop an ethical awareness of all forms of life with which humans share this planet, respect for all life cycles and impose limits on humans' exploitation of other forms of life.

(Gough, 1997, p. 35-36)

These statements stand in contrast to the material quoted in the previous section and have a philosophical approach which seems more in tune with people facing real problems in local contexts than the managerial tone of much of the UNESCO material. It is implicit in the language of the Tbilisi Declaration, for example, that the conceptualisations contained within it are both sufficient and generalisable, and further, that those who developed and promulgated them are in a position to make such judgements.

Having attempted to provide an overview of the field however, it is important to review some of the issues identified in more depth and to articulate my own position within these debates. This is in order to clarify the reasons for taking those positions. The specific debates concern: environmental world views; approaches to research; education *for* the environment; sustainable development; curriculum approaches to environmental education; the "something versus nothing" debate; and, the debate on Significant Life Experiences. The latter has developed into a discussion on the 'gaps' between positive attitudes and positive behaviour. In each debate the position taken has been summarised. This is done because these are the perspectives which shape the research. Clarifying this background is a step in the important process of justifying why it was undertaken and in order to report it thoroughly (Robottom & Hart, 1993; Hart, 2003).

2.3 DEBATES IN ENVIRONMENTAL EDUCATION

2.3.1 A field in tension

Separate from any of the specific debates discussed in this chapter is a tension between the prescription of overarching goals for the field and allowing for local context. Hungerford, Peyton and Wilke (1980) attempted to prescribe goals for the field.

Robottom (1987) responded critically to this. He has more recently (Robottom, 2003) identified this tension between the desire to establish overarching goals and the need for local contextuality directly. Gough, Walker and Scott (2001) emphasise local, contextually tuned responses to environmental education, building on earlier criticisms (Oulton & Scott, 2000; Walker, 1995, 1997) that critical theory had constrained the field and stifled plural understandings. Hart, Jickling and Kool (1999) attempt to develop a working compromise to this tension by developing a framework of questions to assist critical reflection by practitioners. It is of note too, that Palmer (1998) begins her book by offering that part of her purpose in writing was to prevent the endless duplication of effort she observes as people in local areas develop their own goals in isolation. My position here is that there is a need for robust and recognised goals in the field that arise from, and contribute to, ongoing shared dialogue. There is also a necessity to frame such goals and material that arises from them, in ways that can be interpreted at the local level. Such a compromise is held in focus throughout this thesis.

2.3.2 A clash of world views

There are at least three sets of clashes of this world view that are visible in the field of environmental education. One involves different cultural perspectives. What I will call 'western business culture' dominates world thinking. This is not only through its immense power and the vast number of people across cultures who are entangled in it, but also because its values dominate the public media. To assert that all people in the English-speaking world subscribe in full to the tenets of this world view however, is to vastly oversimplify things. None-the-less western business culture has, in colonising the world in various ways over time, been unsympathetic to the views of local cultures. This idea of local cultures has often been expressed in terms of the cultures of indigenous peoples. I think the term 'local culture' is more general and less value laden as many nations are inhabited by diverse cultures with complex histories and interrelationships. Views of the environment espoused from a western perspective, are often in conflict with the views contained in local cultures, even those which are ethnically homogenous with dominant social groups.

An example of this, but one that I will identify as a second clash of world views is contained in a feminist perspective. This asserts that understandings of the environment that dominate western thinking are embedded within a gendered paradigm which does not represent the perspectives of women.

A third clash of world views exists even within 'mainstream' gendered western environmentalism. This clash is succinctly summarised by O'Riordan (1989). Understanding it is central to the work of this thesis and it will be elaborated in some

detail in beginning this section. The section will then briefly address the other two clashes introduced above in relation to O’Riordan’s work. It is intended to acknowledge the importance of these other clashes but dealing with them in depth is beyond the scope of this work.

O’Riordan (1989) identifies two distinct approaches within western environmentalism. He labels one ‘Technocentric’ and the other ‘Ecocentric’. Technocentric environmentalism is instrumental in intent. Technocentric environmentalists have faith in existing structures to solve environmental problems. Extreme Technocentrics, “interventionists”, have complete faith in human ingenuity, science, and the market to manage the environment for the betterment of all. More moderate “Accommodationists” acknowledge that some adjustments in our current patterns of behaviour are needed in response to environmental problems. Ecocentric environmentalists, also come in two colours. Communalists put their faith in cooperative, small scale, locally based economic activity and are essentially ecosocialist, or red-green, in persuasion (Dunkley, 1992). Gaianists on the other hand see the Earth as a self-regulating living organism after the work of Lovelock (1979, cited in O’Riordan, 1989). Gaianists see themselves linked to the Earth in a nurturing relationship. O’Riordan’s summary of these ideas is contained in the table below.

I do not see O’Riordan’s four categories as a continuum but rather as a triad of overlapping positions. The two technocentric positions lie together of course, placing the economy centrally in technocentric thinking about the environment, but differing in the degree of their faith. Technocentric environmentalism can be seen in the New Zealand Ministry for the Environment’s *Environment 2010 Strategy* document (Ministry for the Environment, 1995), which stresses a vibrant market economy as its first precondition for caring for the environment. An ecosocialist, Communalist, perspective emphasises human welfare along with concern for the environment. This occupies a second segment of the triad while a deep green, natural environment centered Gaianist approach fills the third.

As mentioned already, O’Riordan’s taxonomy makes no mention of eco-feminism which will be discussed in a later paragraph. It perhaps also oversimplifies the range of views that might fit under a deep green umbrella. Radical greens such as Greenpeace activists would sit comfortably here but so might various so-called ‘new age’ spiritual greens. This perspective has been criticised by Mellor (1992, in Fien, 1993a), as a movement of the powerful that does nothing for the powerless. Despite these difficulties O’Riordan’s conceptualisation helps identify the complex and conflicting positions that exist within the field that at a superficial glance, appears

homogeneous, but that is, by his analysis, populated by people who use the same vocabularies, informed by different values and world views.

Ecocentrism		Technocentrism	
<i>Gaianism</i>	<i>Communalism</i>	<i>Accommodation</i>	<i>Intervention</i>
Faith in the rights of nature and of the essential need for co-evolution of human and natural ethics.	Faith in the co-operative capabilities of societies to establish self-reliant communities based on renewable resource use and appropriate technologies.	Faith in the adaptability of institutions and approaches to assessment and evaluation to accommodate to environmental demands.	Faith in the application of science, market forces, and managerial ingenuity.
'Green' supporters; radical philosophers.	Radical socialists; committed youth; radical-liberal politicians; intellectual environmentalists.	Middle-ranking executives; environmental scientists; white-collar trade unions; liberal-socialists, politicians.	Business and finance managers; skilled workers; self-employed; right-wing politicians; career-focused youth.
0.1 – 3% of various opinion	5 – 10% of various opinion surveys	55 – 70% of various opinion surveys	1- 35% of various opinion surveys
Demand for redistribution of power towards a decentralized, federated economy with more emphasis on informal economic and social transactions and the pursuit of participatory justice.		Belief in the retention of the status quo in the existing structure of political power, but a demand for more responsiveness and accountability in political, regulatory, planning, and educational institutions.	

(O'Riordan, 1989, p. 85)

Figure 2.2 O'Riordan's ecophilosophies

This framework for conceptualising does provide a reasonable approach for identifying the other two sets of clashes mentioned above. In the first instance it helps conceptualise the range of positions or local cultural views within European societies. It also provides a framework that can fit a range of ecofeminist views. Liberal ecofeminists might, for example, fit under an accommodationist position. Radical feminists could be positioned within a communalist perspective, while deep green ecofeminists would clearly occupy a position in the Gaianist perspective.

A traditional Maori perspective can also be positioned using O’Riordan’s ideas. The Maori genesis explanations in which all things trace their ancestry back to Ranginui, the sky, and Papatuanuku, the Earth through whakapapa (genealogy), could be identified with the Gaianist position. Traditional Māori economic arrangements, being small scale, local and communal, also provide a communalist ideal. Thus these might be seen as a fusion of O’Riordan’s Communalist and Gaianist positions. This is not to suggest that an indigenous culture can be understood in the terms of an alternative culture, but to recognise that O’Riordan’s work does contain a useful sweep across diverse world views.

Thus while not attempting to position either the ecofeminist or indigenous cultural richness using O’Riordan’s framework, it does provide a useful taxonomy for understanding the range of positions that contribute to environmentalism. For this reason it is used as an analytical frame throughout this thesis, where appropriate, and to position the research stance taken within the wider spectrum of world views the framework captures.

The Research position

Clearly there are a variety of positions in the field which are not all compatible with each other. Tensions often appear to result from the failure of people to clarify the underlying values and assumptions that shape their view of the world. It is common to see environmentalists who clearly hold widely divergent world views attempting to discuss issues, often using the same language, without common understandings of meaning and this is an ongoing issue in the field. In this regard, O’Riordan’s (1989) work is helpful both for analysing one’s own worldview and the worldviews of others. My own position has become one that fits most centrally within ‘ecocentric communalism’. There are some aspects where I have Gaianist leanings, and others where I can accommodate market initiatives as a move forward, despite my general rejection of the market ideology.

The Communalist position which underlies this work then, puts faith in the as yet unrealised capacity of citizens to bring about change through democratic processes. It aspires to a more local and self-sufficient economy that is not only equitable but also values other human activity more than the acquisition of economic surplus. This approach requires the negotiation of social goals and meanings and is thus inclusive of all people and their cultural aspirations within agreed social limits. While rather general and utopian, this position allows for heterogeneity, is built on local economy and culture and should not be based on a gendered view of the world. This view is seen to provide the most promise for resolving some of the clashes articulated in this section. A framework for such a vision has been discussed by Fien (1988) under the description of a “conservator society” that is based on four simple principles; stewardship, enoughness/equity, cooperation and democracy. I can find no fault with these principles.

In identifying this position I have attempted to clearly articulate the philosophical stance from which this research has been undertaken and in doing so to allow the reader to identify the value judgements which inform it. Acting to develop the new patterns of behaviour required by the Tbilisi Declaration requires a vision of what an alternative society might be like. While acknowledging this worldview however, I have also striven throughout this work to be as objective as possible in considering the data and reviewing the literature, while being aware that neutrality is impossible. The position of committed neutrality that has been advocated by Kelly (1986) as the most useful for dealing with controversial issues and is in keeping with the views of Hart (in Hungerford and Simmons, 2003) relating to environmental education research, is kept in mind in this regard. Hart (Hungerford and Simmons, 2003) emphasises the importance of clarifying and declaring one’s own position. This also fits with general advice in the field of social science in which one attempts to read the data available from the perspective of its providers as they intended it. This involves stepping away from one’s own values, to as great a degree as possible, while being conscious of how these might shape interpretation (Berg, 2001). In this thesis the term ‘self conscious’ will be used to capture this complexity. That is, the striving to be as objective as possible, realising this is an ideal, but doing so in a way that is conscious of the theoretical and values positions which shape the research.

2.3.3 Research debates

In reviewing approaches to research in environmental education, Palmer (1998) identifies three key perspectives that are familiar throughout the social sciences. She considers that Empirical, Interpretive and Critical approaches all have contributions to

make to the field. Greenall Gough (1993) is less sympathetic. She is critical of the hegemony of approaches to research derived from the natural sciences, considering that these are not applicable to environmental education. Gough is critical of the work emanating from the University of Southern Illinois at Carbondale. The team there, led by Harold Hungerford, has a long record of quantitative, applied science research, in environmental education that is behaviourist in tone and takes the view that knowledge is neutral and generalisable (Hungerford, Peyton & Wilke, 1980). Robottom and Hart (1993) are critical of the positivist world view that informs this approach and that has long dominated the proceedings of the *Journal of Environmental Education*. Hungerford has had a long editorial involvement with this publication.

In contrast to Palmer (1998), Robottom and Hart (1993) conduct a detailed critical analysis of research approaches. Central to their discussion is the view that while research methods may be applied in a range of situations, it is the worldview that underpins research that is of crucial significance. They reject the positivist approach in which knowledge is seen as awaiting discovery, and where, when discovered, it is assumed to be of general applicability. Robottom and Hart (1993) are scathing of the Carbondale approach in which programmes and initiatives are developed by 'experts', tested in pilot situations, and then produced in teacher-proof form to be distributed to schools. They argue that knowledge and meaning are deeply contextualised and advocate local collaborative, action research as the best approach for the improvement of practice.

In beginning this research, I was conscious of this debate but took a middle-of-the-road approach. At the outset I took an interpretive path, although collaboration was considered important. As well, I was conscious that science is not a single discipline. Methods in traditional physical sciences where variables are controlled are not applicable to other sciences where naturalistic observations are predominant. Post positivist science is also conscious of the way in which culture and existing theory influence observations and interpretations of the world (Swann, 1999; Reiss, 1993).

In response to these understandings and the influence of the socio-political context on educational structures and the life of schools, I chose simply to select methods in response to the problem at hand. Thus the research began in an interpretive vein. I was also aware of the dangers of extreme relativism in interpretive approaches (Hoffman, 1994). The work initially took an approach which in hindsight might be described as 'loosely theorised'. It was apparent as the research evolved however that this was inadequate for dealing with the complexities that arose. The deeper theorising of the complex issues of world view, methods and methodologies latent in the research are addressed in later chapters.

2.3.4 Education for the environment

The descriptors education 'about', 'in' and 'for' the environment were developed by Arthur Lucas in his doctoral thesis (Gough, 1997) and have become widely used and discussed in environmental education. It has been argued, particularly by the Australian socially critical 'school' (including Lucas, 1980 in Gough, 1997; Greenall, 1987; Robottom, 1984; Stevenson, 1993; Fien, 1988, 1993a, 1993b, 1997) that it is action *for* the environment that characterises environmental education. Fien (1993a) has extended this to "critical education for the environment". It is argued that without this action component programmes do not meet the transformative goals of the Tbilisi Declaration.

Useful as Lucas' aspects are, what becomes difficult when they are examined is to decide what actually constitutes education *for* the environment. The Tbilisi Declaration requires that programmes examine the causes as well as the symptoms of environmental problems and Huckle (1991) identifies many educational programmes as part of the problem because they fail to engage with issues of cause. I have extended this argument (Chapman, 2004) in articulating the view that such programmes work *against* the environment by claiming to be a sufficient response. In this light, Lousley (1999) explains how the most commonly seen environmental initiatives, school litter schemes and tree planting programmes, serve to depoliticise and control students' environmentalism by containing it within socially acceptable boundaries. Thus, there is the danger that what appears to be action can be counter-productive, being physical, but not necessarily social action. Such action either disguises the causes of problems, or pretends to be sufficient when actually a trivial response.

There have been a number of arguments opposing education *for* the environment. Jickling (1992) has contended that education should not be *for* anything but should introduce learners to arguments and positions and allow them to develop the philosophical tools to examine those arguments for themselves. This argument has been developed in more subtle form by Jickling and Spork (1998) who claim that Lucas' three categories have become sloganised and Jickling (1999) presents an even more convincing argument that raises some complexities that will be considered in a later part of this thesis. Scott and Oulton (1999) and Oulton and Scott (2000) join this debate, considering that insistence on education *for* the environment has constrained plural understandings of the field and stifled innovation. Walker (1995, 1997) argues that socially critical education *for* the environment has largely failed and that a more adequate theory is required.

These arguments hinge on two separate points of contention. The first is the neutrality of schooling and the second is the issue of what constitutes activity *for* the environment. Understandings about the way in which schools teach values are complex and are examined in increasing complexity throughout this thesis. While the idea that schools should be neutral is compelling, the *New Zealand Curriculum Framework* (Ministry of Education, 1993a) acknowledges that this is not the case and this challenges, but does not dismiss, the Jickling argument. Understanding action *for* the environment is also complex.

If, for example, environmental education works to change people's values towards the environment and take action to improve or protect it, but does not consider the causes and challenge the values systems which drive those causes, it may at best be accommodationist (O'Riordan, 1989). At worst, it may be simply cosmetic, and, as Huckle (1991) argues, part of the problem rather than the answer. It is central to the work of this thesis from its earliest inception that environmental education must be characterised by action and involve curriculum practices and pedagogical strategies that engage students in examinations of the causes of problems as suggested by the Tbilisi Declaration. This is a position supported by Stevenson (1993). I contend that it must also involve teachers in critical reflection on their own roles within schools and the role of schools as agencies of hegemonic social reproduction within society. This requires, at the very least, considering the nature of the implicit curriculum within schools as Eisner (1979) describes it, and of the possible role this has in legitimating structures and behaviours that cause environmental and social injustice. Thus the work here takes the position that environmental education must be *for* the environment to deserve being classified as such. What exactly constitutes action for the environment is a vexing issue given the complex nature of the causes of environmental problems and must be judged case by case. This issue too will be considered later in the thesis using the theoretical framework developed within it.

2.3.5 Sustainability

Emerging in the 1980s in the form of sustainable development this concept has become extremely problematic. It was used in the *World Conservation Strategy* (IUCN, 1980) and popularised by the World Commission on Environment and Development (WCED, 1987) report *Our Common Future*. The term has multiple definitions and Gough (1997) has described it as a slogan, empty of specific meaning.

The WCED report defines sustainable development as that which:

... meets the needs of the present without compromising the ability of future generations to meet their needs.

(WCED, 1987, p. 8).

The report goes on to say:

The concept of sustainable development does imply limits – not absolute limits but limitations on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organisation can both be managed and improved to make way for a new era of economic growth.

(Ibid)

Thus the concept of sustainable development was closely linked with that of economic growth. The report contains within it the seeds of what is now referred to as the Knowledge Wave or Knowledge Economy, in which a new wave of economic growth can occur built on ingenuity and invention rather than mass production. This involves increasing, and charging for, an added knowledge component in goods and services. This is a view that fits closely with O'Riordan's (1989) description of Technocentric Interventionism. It is built on the assumption that continued economic growth can occur without using more resources and producing more waste. While this may be possible in some cases (electronic miniaturisation is an often cited example), there is little evidence to suggest that the basic needs of the Earth's citizens can be met in this way. Needs for adequate food, housing, sanitation and water cannot be met without the use of material resources. The report grapples unsuccessfully with this issue in a later section when it contends:

The essential needs of vast numbers of people in developing countries – for food, clothing, shelter, jobs – are not being met, and beyond their basic needs these people have legitimate aspirations for an improved quality of life.

(WCED, 1987, p. 43)

It goes on in following paragraphs to add:

Living standards that go beyond the basic minimum are sustainable only if consumption standards everywhere have regard to long term sustainability...

Meeting these essential needs depends in part on achieving full economic growth potential and sustainable development clearly requires growth in places where such needs are not being met. Elsewhere it can be consistent with economic growth, provided the content of growth reflects the broad principles of sustainability and non exploitation of others.

(WCED, 1987, p. 43-44)

This is at best an ambivalent statement, evincing a faith in economic growth as a panacea for human ills. The evidence suggests however, that economic growth, as it is currently understood, is the cause rather than the answer to social and environmental problems. Citing the United Nations Development Programme Press Kit for Human Development Report of 1992, Calder and Smith (1993) display data showing the income disparities between the richest and poorest fifths of the world's population based on 1989 figures. The imbalance, a ratio of 59:1 had grown from 30:1 in 1960. The report by the New Zealand Parliamentary Commissioner for the Environment (PCE, 2004) puts the current ratio at in excess of 65:1. Data from the World Bank (World Bank, 2001) is consistent with these statements.

The statements by the WCED (1987) fly in the face of this data and in doing so demonstrate the hegemony of economic considerations over human ones. This is evident in most of the discourse on sustainability. An example of this is found in Principle 16 from Agenda 21 relating to pollution which says; "the polluter should in principle bear the cost ... without distorting trade and investment" (UNCED, 1992, pp. 10-11, see Appendix one).

Not only does this demonstrate the privilege afforded to the economy by those who were able to shape the declaration in the manner seen in the WCED report cited above, but it also presents an 'opt out clause' so big as to render the Principle meaningless. This allows for refusals by the United States of America and Australia to honour the Kyoto agreement on carbon dioxide emissions in 2001. The refusals do not contravene Principle 16, it could be argued, since reducing pollution would cause economic 'distortion'.

The WCED quote above however, appears to be a tautology when read more critically. Living standards beyond the minimum are sustainable if they are sustainable, is its approximate content and the report repeats the same view in relation to growth, adding a "non exploitation" call. The evidence above however (Calder & Smith, 1993; PCE, 2004; World Bank, 2001) suggests that growth is built on exploitation rather than being the answer to it.

Writing shortly before the 1992 Earth Summit, Huckle (1991) analysed two views of sustainability. The first, that of sustainable growth, he identified as the greening of capitalism. The second, sustainable development, he saw as the greening of socialism. This is the “political minefield” of sustainable development described by Palmer (1998). Huckle (1991) contends that the concept of sustainable development:

Fails to analyse causes, uses vague code words to rally support, seeks solutions that do least damage to the existing order and identifies the executors of solutions within the existing power structure.

(Huckle, 1991, p. 53)

In going on to discuss environmental education, Huckle attempts to retain the usefulness of the concept of sustainability by using the expression “environmental education for sustainability” (Huckle, 1991, p. 59). He thus harnesses it to the potentially transformative goals of the Tbilisi Declaration (UNESCO-UNEP, 1978). He updates this argument (Huckle 1999) in response to Sauvé’s (1999) view that sustainability involves a tension between modern and postmodern views of the world.

In response to the statements on sustainable development contained in *Our Common Future* and *Agenda 21*, Fien and Trainer (1993) argue that there *are* limits to growth and in response attempt to redefine development in a way which challenges current ideas such as trickle-down economic theories. Their notions of a more holistic view of development are explored further by Sterling (1993) in the same publication. Fien and Trainer use the term “education for sustainability” (Fien and Trainer, 1993, p. 38) and Fien explores escape routes from the sustainable development, sustainable growth debate in different ways in both *Environmental Education: A Pathway to Sustainability* (Fien, 1993b), and in the notion of “education for sustainable living” (Fien, 1997, p. 27).

Perhaps because of the lack of definitional clarity of the term in *Our Common Future* (WCED, 1987), there has been a proliferation of definitions of the concept of sustainability. Moffat (1992) claims that Pearce, Markandya and Barbier’s (1989) documentation of 60 definitions constitutes a low estimate (both cited in Palmer, 1998, p. 83) while Jickling (1999) suggests over one hundred. In general, the ‘critical school’ of writers consider that the concept of sustainable development fails to challenge the causes of environmental problems which Huckle, in particular, articulates as lying in capitalist modes of production and distribution. Thus I conclude that sustainable development does not provide the clear directions for education found in the Tbilisi Declaration. Neither does it contain the clarity of definition needed to move beyond the general call for new patterns of behaviour made in the Tbilisi Declaration.

Environmental Education is directed towards establishing new patterns of behaviour by individuals, groups and society as a whole toward the environment.

Programmes should assist learners to understand the complex nature of the natural and built environments, the social, political and cultural factors that influence them and their interdependence including that between urban and rural environments.

Programmes need to develop Awareness, Knowledge, Attitudes, Skills and Commitment to participate in the solution of environmental problems.

Important in this process are positive environmental values, self-discipline, critical thinking, data interpretation and practical problem-solving skills. Influential factors in developing these abilities are:

- an approach which integrates traditional subject disciplines using real local problems, particularly in early years; develops knowledge and considers national issues whilst balancing current and historical perspectives; and
- identifying and analysing the values positions that inform behaviour while also discovering the symptoms and real causes of environmental problems;
- utilising a wide range of learning situations and approaches which stress practical activity and first-hand experience, allow learners to have a role in planning their learning experiences, making real decisions, taking action and accepting the consequences.

Environmental education should be a life long endeavour *towards a sustainable future in which resources are not used faster than they are replaced, wastes are not produced in excess of the planet's capacity to dispose of them, other living things are not jeopardised, and the physical environment is minimally disturbed.*

Figure 2.3; A framework for school based environmental education

Following from this conclusion the work in this thesis will continue to use that Declaration as its reference point and use the term environmental education as defined by UNESCO-UNEP in the Declaration as central to this research. This is not to assert it

is beyond critique as has been made clear, but it is to affirm that it has reasonable precision and is of sufficient legitimacy to be central to this study. Further, the Tbilisi Declaration is referred to directly in the New Zealand Environmental Education Strategy (Ministry for the Environment, 1998) and informs the Aims of the *New Zealand Guidelines for Environmental Education* (Ministry of Education, 1999a). This provides useful corroboration in the New Zealand context for the stand I have argued in this section. Based on this discussion, the summary of the Tbilisi Declaration as it applies to school based education contained in Figure 2.1 on page 10 has been elaborated as a set of criteria for guiding and analysing practice for the purposes of this thesis by including the term sustainability. To avoid definitional debate four simple criteria proposed by Chapman (2004) are used to support the concept. These additions are italicised in the summary contained in Figure 2.3 above.

In December 2002 UNESCO declared a decade of commitment to education for sustainability from 2005 to 2014 (Tilbury, 2003). Rather than catalysing a revision of the goals of environmental education that have been outlined here, this decade poses a new challenge to environmental educators. That challenge involves an engagement with, and reconstruction of, the current accommodationist understandings of the term sustainability so that the decade might be a purposeful one. This heightens the importance of understanding how to facilitate transformative practice rather than reducing it.

2.3.6 Curriculum Debates

The issues involved in a consideration of how environmental education should express itself in curriculum are also complex and subtle. In many cases these debates take the form of discussions about what should happen in ideal conditions being set against considerations of what actually happens in schools, and this overlays the debates with a second order of contention. Gough (1997, p. 7) observes early in her analysis that in general, organisational and administrative approaches to environmental education have been dominant over philosophical ones. Thus, discussion of curriculum models and administrative and pedagogical strategies has been prevalent.

An extreme example of this is seen in the work of Hungerford, Peyton and Wilke (1980). They outline goals for environmental education which they considered as foreclosing on further debate. In what appears to be a similar attempt to define the intentions of the field, Fien and Tilbury (1996) list scores of competencies, although they argue that these are not behavioural objectives. There are many further examples in the literature calling for organisational responses to environmental education

problems (Outlon & Scott, 1995; Jaritz, 1996; Scott, 1996; Harding, 1997; Posch, 1997; McConnell, 2001). Many of these calls are for changes in curriculum, organisational structures, teacher education, support relationships and related organisational changes to overcome poor uptake of environmental education in schools. As Gough (1997) confirms throughout her book, any sociological challenges to the nature of schooling itself are notably absent.

Given that organisational debates dominate the field it is understandable that curriculum debates focus on curriculum organisation. One debate is whether environmental education should be seen as content to be taught or as a process of learning. The content approach is seen as arising from the natural sciences and tends to be rational and objectives based, often appearing values free and lacking an action focus (Gough, 1997). The process approach, Gough reports, is visible in the earliest formulations in the field, including the Tbilisi Declaration. Gough (1997) further discusses the tensions within this perspective, citing a number of writers who attempt to link their views of environmental educational as process, with suitable curriculum theories. The essential tension occurs between those who see the outcomes of such process as indeterminate and those who seek to specify learning objectives as outcomes. She considers that the objectives model continues to dominate the field.

The review so far shows an instrumental approach in which objectives and directions for learning are set, and education seen as the mechanism for their achievement. Gough illustrates this point as follows:

The first priority national action to achieve the objectives of the NCSA [National conservation Strategy for Australia] (DHAE, 1984, p. 17), under the heading of 'Improving the capacity to manage', was to

Develop and support informal education and informative programs which promote throughout the community an awareness of the interrelationships between the elements of the life support systems and which encourage the practice of living resource conservation for sustainable development.

It would be difficult to find a more instrumental statement for the task of environmental education, unless that mantle could be assumed by the Commonwealth discussion paper on ecologically sustainable development which states, in one of its few references to education, that:

public education campaigns can help in modifying behaviour to reduce demands for products with adverse environmental consequences and encourage the use of less

damaging alternatives. The emergence of green consumerism attests to the ability of public education to modify consumption patterns. (DPMC, 1990, p. 19)

(Gough, 1997, pp. 32-33, original italics)

Within this over-riding instrumental orientation, a further debate occurs regarding whether environmental education should be seen as a separate subject or as a cross-curricular theme within the whole-school curriculum. This debate is powered by the tension between the specification in the Tbilisi Declaration (UNESCO-UNEP, 1978) that environmental education be interdisciplinary, and the organisational reality of secondary schools in particular, around examinable subjects. Within the New Zealand curriculum resolution of this tension has been attempted by distributing references to the environment across a number of curriculum areas. There are however, a range of approaches to the way that these might be enacted that will be considered in later theorising.

Gough (1997) further summarises the work of a number of theorists in stating a set of principles for a holistic approach to environmental education as follows:

All modes of experience and all sources of information contribute to the totality of knowledge and all are equally accessible to every student.

The student can use any significant personal experience as a source of learning, since each experience will provide a source of questions, and if these questions are validly answered the student will gain meaningful information in all the categories of knowledge.

Topics, situations and problems are all appropriate means by which to provide a sequence or a pattern for acquiring information.

Evaluation should be a task of both student and teacher.

The holistic curriculum is based upon dialogue between student and teacher.

(Gough, 1997, p. 79)

Gough links these principles with critical education for the environment, an approach for which she is a strong advocate.

The view Gough expresses above presents an idealised view of education. It contains no recognition of the role of assessment and evaluation in providing credentials on the

basis of which learners are allocated social and economic roles in society. It also contains an idealised view of curriculum, failing to acknowledge its prescriptive nature or the assessment and review processes which it has been argued by Codd, McAlpine and Poskitt (1995) and Peters and Marshall (1996), are intended to control schools and confine them to that curriculum. It also makes no recognition of the power relations within the school, the compartmentalisation of knowledge, or the role of the school in reproducing these and the wider social relations of its parent society.

As will be seen in later chapters of this thesis the principles set out by Gough (1997) above are not consistent with educational structures and approaches dominant in education in New Zealand at the present time and are somewhat utopian. I have no objection to a utopian vision, however, I think a critical view within environmental education, or anywhere else, must take a harder look at the nature of the problems than is evident in the summary above. Proposing an idealised view of education has not been of particular help in making improvements in schooling. Critique must also reach beyond curriculum to the nature of schooling and this thesis attempts to confront these issues. Critical education also seeks to subject educational structures to ongoing scrutiny. The critical approach that will be taken here is informed by the new sociology of the 1970s, and links with Bruner's view that:

A theory of instruction is a political theory in the power sense that it derives from consensus concerning the distribution of power within the society – who shall be educated and to fulfil what roles ... (the) educator who formulates pedagogical theory without regard to the political, economic, and social setting of the educational process courts triviality and merits being ignored in the community and in the classroom.

(Bruner, 1973, p. 115)

In developing their critical approach to environmental education, Gough, Fien and Huckle refer to the work of both Giroux and Kemmis. Critical education for the environment has also linked Lucas's early analysis (education about, in and for the environment) with these perspectives (Huckle, 1993). The critical position seeks to locate environment education in social and historical contexts, posing critical questions about the nature of society and the interactions between people, and between people and the environment. It is seen by Huckle (1993) as being emancipatory after Habermas, and contributing to discursive democracy as a vehicle for achieving the goals of environment education. Fien (1993a) proposes a critical curriculum theory involving a holistic view which is interdisciplinary, confronts the interdependence of environmental problems with social and political structures, and encourages political

literacy, critical thinking and social action. Several of these aspects might be seen as pedagogical in nature rather than relying on new curriculum structures however.

This critical approach has been criticised as failing to relate to teachers' existing theories of their work (Walker, 1995, 1997). Certainly, apart from suggesting that teachers can become transformative intellectuals (Giroux, 1985) and challenge the structures which may constrain them (Giddens, 1984), Fien (1993a) provides little in the way of concrete suggestions on how they might do this. Walker's critique will emerge in detail in later chapters.

What this brief summary shows is that ways forward in education are by no means simple. No clearly effective curriculum approach to the problems of transforming society towards the new patterns of behaviour demanded by the Tbilisi Declaration and suggested in the Principles of Agenda 21, has yet emerged. Moreover, it does not seem likely that they will as long as curriculum development proceeds along the technical and rational lines that involve prescribing detailed objectives and evaluating their uptake. Environmental education, and perhaps all education, requires spaces for people to explore their own contexts in their own ways.

In seeking to understand teaching for the environment, the complex area of curriculum must be a central consideration. Further, pedagogy and curriculum are inter-related both with each other and the wider context in which schooling is embedded. This linking increases the complexity of curriculum analysis. These complexities are dealt with in detail in drawing on the field of curriculum theory to expand the understanding of school-based education in Chapter ten.

The summary here is intended to outline a number of debates about curriculum that occur within environmental education. To return to a point touched on earlier however, the New Zealand curriculum does not specify a separate environmental subject. References to the environment can be found in a number of places if they are looked for (Chapman, 1999) but they are not emphasised. The immediate challenge is not to decide what is the best way to include environmental education in some future curriculum (while of course being alert to the possibility), but to determine how to assist teachers to take advantage of the opportunities that exist now. This is a pragmatic issue.

2.3.7 Something Versus Nothing

This is my own encapsulation of a debate that has been simmering for twenty years. Even those advocating education *for* the environment in early days, particularly Robottom (1984), realise that it is extremely difficult in practice and that has not changed (Robottom, 2003). Responding to Robottom's (1984) arguments, Walsh (1984), proposed a separate subject of environmental studies claiming that the infusion model advocated over the previous decade had enjoyed little uptake. While this looks like an extension of a debate about curriculum, it is interpreted here as a debate about how to make a start, even if this is less than perfect. This issue expresses the tension between doing something in the knowledge that it is less than ideal and doing nothing because the 'something' is not ideal. The "something versus nothing" debate impinges on the previous debate about curriculum. Walsh (1984) essentially argues that something (environmental studies as an optional separate subject) is better than nothing, and hopes this avenue might lead on to the development of action dimensions for the environment as teachers develop capability and confidence. It appears that Walsh was grappling with the same issues that, twenty years on, are central to this thesis. Scott and Oulton (1999) argue the same point when they say that the insistence on a *for* the environment component has constrained the field. This argument is a direct challenge to views of a number of Australian educators that Fien (1988) summarises. For him, in the absence of a *for* component, the goals of environmental education are not being met. This disguises what exactly constitutes action *for* the environment as has been mentioned. Action programmes may make everyone feel good but do they actually improve the situation or are they essentially cosmetic? Here I agree with Huckle (1991) when he asserts that much environmental education is part of the problem rather than the solution because it does not reveal the true causes of environmental problems let alone act to address them, even if this is possible through schools.

The issue of the depth to which programmes penetrate environmental issues, are able to apprehend the real causes, the debates surrounding whether or not you should teach *for* anything, and, what the anything might be, continue to reappear. These issues are relatively simple in comparison with deciding what actions or activities contribute to achieving those intentions, and over what time frame. Take as an example a school that changes its rules so that children are strongly discouraged from bringing processed foods to school (no packaging) and in conjunction with this step establishes a school-wide recycling scheme, composts its organic waste, including paper (used on both sides), by shredding it and feeding it to its worm farm. As a result, its volume of landfill bound waste almost vanishes. This does constitute education for the environment. It models and encourages changed behaviour and targets the cause of the problem.

In contrast, another school installs coloured bins and encourages everyone to consign their litter to the appropriate bin. This is a school recycling scheme that does not tackle the cause. In fact, by implying that by throwing waste into a different bin one is acting for the environment, schemes like this may in reality excuse reflection on purchasing and consumption and create a false sense that this action is sufficient. Schemes like this are, as Lousley puts it, "the dream project in the liberal self-empowerment model of high school (eco) clubs" (Lousley, 1999, p. 300) as she argues that they simply cloak consumerism.

Recycling schemes are, however, where many emergent environmental educators make a start, and what does one say to them? "You are fooling yourself if you think that makes a difference." The only effect such a response is likely to engender is a determination by the victim never to speak to you again. The only purposeful initial response is an encouraging one, followed perhaps by some reflective questions such as: "have you taken any steps to reduce the volume of material the school generates?" or "what is your next step going to be?" The nature of such questions hinges on the strength of the relationship between those conversing. Unfortunately, initiatives of the kind described in my second example are far more common than those similar to the first as Scamp (1996), Fien (1997), and Lousley (1999) make clear.

What emerges from this is that in working with teachers and practitioners on the job we are involved in messy compromise. Thus, something must be seen as better than nothing provided that something is also seen as a beginning of a journey rather than the end. Maintenance of that sense of journey leans heavily on the development of a supportive but critical dialogue with others, and with one's self, that continues to ask, "what is the next step?" Moving environmental education forward in this messy world of the daily pressure to compromise that is a feature of teachers' lives is one of the challenges undertaken in this work.

2.3.8 Attitudes and action

There is another set of debates in the field which are general rather than relating to school-based education. These relate to the links between Significant Life Events, in particular, between wilderness experiences, and positive environmental behaviour. This has developed into a more general discussion of the 'gaps' between positive attitudes toward the environment and positive behaviour.

The journal, *Environmental Education Research* (EER), has in recent years provided a comprehensive and truly international discussion of the issues of the 'gaps' between attitudes and action and 'significant life experiences'. I wish to briefly review the genealogy of these discussions at this point.

The debates can be traced at least as far back as Caduto's (1983a, 1983b) work on environmental values. Iozzi (1989a, 1989b) reviewed the literature relating to attitudes and values and the affective domain. Newhouse (1991) made a further review contribution discussing the links between knowledge, attitudes and behaviour, again concluding that there were no easy answers. In the resurgence of this debate in EER over the period 1999-2003, three full issues and numerous other articles have focussed on these debates. Kollmuss and Agyeman (2002) provide a comprehensive analysis of the issues but come to very much the same conclusion: there are not simple links.

While on one hand there do seem to be links between wilderness experience and environmental activism in adult life, these are not simple cause and effect relationships. Meaning and value are embedded in complex social patterns and relationships and not amenable to behaviourist learning strategies. Much of this discussion is focussed on the individual and perhaps gives insufficient weight to the complex contexts within which individual behaviour is expressed. Chawla (2001) makes the point that social change has in the past occurred largely as a result of the work of activists who are prepared to challenge the status quo.

In some ways this debate is obscure and unhelpful in that understanding the gaps between attitudes and practice should contribute to environmental education activities for teachers at one level and for children at another. It is separate from the discussion of the gap between the theoretical rhetoric of the field and the reality of practice but perhaps symptomatic of it in that the theorists cannot provide useful consensus advice to those who have children in their classes each day. These issues have all contributed to the development of this research.

2.4 THE RESEARCH QUESTION

This research set out to do something, rather than nothing, in a real context with teachers who might want to act for the environment in their professional lives. Initiatives in schools need to be conducted within the constraints defined by the New Zealand curriculum and school system, and the teacher education regimes that prepare teachers to work in it. It was in this background that the research developed.

In the context of the issues raised in this chapter then, the purpose that lay behind the work within this thesis has always been conceived in terms of the central research question. That is, **“how can teachers be empowered to take on transformative practice for the environment in New Zealand schools”**.

Research on this question has been undertaken in complete consciousness of the political nature of schooling and of the challenge to the status quo contained in the goals of environmental education. This consciousness also included the knowledge that despite lighthouse examples of good practice celebrated in many places, there was, and remains, a sense of both bewilderment and alarm in the field from critical and liberal educators alike, that not much is really being achieved (Stevenson, 1986; Huckle, 1991; Fien, 1993a, 1997; Walker, 1995, 1997; Oulton & Scott, 2000).

The research question must be read in the knowledge that it was also a challenge to myself as a teacher educator to develop approaches to teacher education in the ‘spaces’ available, that would be of value to teachers wishing to begin environmental education. This initially involved establishing and following up a course on environmental education within a teacher education degree as explained in Chapter Five. That course and any related work had to address and help teachers negotiate the issues which confront the field that have been considered in this chapter.

The notion of empowerment was not intended to be read in a behaviourist sense of developing activities or programmes that would lead to predictable educational outcomes. Rather it was hoped to develop ways of thinking about education that would provide teachers with useful approaches to their professional lives within the school system with a focus on environmental education.

With reference to the issues raised above, this involved developing a sound background knowledge of the goals of environmental education and of some of the contested issues within it, particularly O’Riordan’s (1989) work. It also involved thinking about the structure of curriculum both in general, in terms of curriculum theory, and specifically in terms of the New Zealand curriculum. Finally it involved thinking about the role of schools in society, the ideologies shaping New Zealand society and schooling at the time, and the multiple tasks that learners are expected to be ready for at the end of school based education. The intention here was to assist teachers to consciously reflect on the complex nature of their work in order to make decisions on the basis of educational rather than ideological arguments. All of this was founded on the knowledge that spaces do exist within the New Zealand curriculum to build a classroom or school programme around the goals for environmental education

found in the Tbilisi Declaration which also constitute sound educational practice (Kyburz-Graber, 2003). The research work however, developed beyond the notion of initiatives in teacher education alone as will be seen in subsequent chapters.

2.5 SUMMARY

This chapter has identified a number of debates, clashes of purpose and challenges which can be found within the field of environmental education. It has been the intention within it to draw attention to these, to briefly summarise the issues involved and to indicate the way in which I have responded to these in developing the research. Of particular importance in this chapter is the encapsulation (in Fig. 2.3) of a set of criteria for developing and evaluating environmental education activity in schools. All of this hinges on the central goal of environmental education to develop new patterns of behaviour toward the environment. That would be a difficult challenge in any circumstances, even when a society was static and amenable to change.

In reviewing these debates and providing a background understanding of the field, the research question which is the focus of this thesis has been clarified and elaborated. Care has been taken to clarify the researcher's position on each issue in discussing each review. Faith is placed in the reader to weigh the extent to which the work has been conducted in a way that is as objective as possible. Clarifying the research position on each issue is intended to assist this task.

The context within New Zealand at the time of the genesis of this study was not stable however, but actively moving toward the political right and increased social and environmental tension. It is difficult to understand the nature of the project without an understanding of the context in which it occurred. Some of the positions taken within this chapter may seem quite conservative but there are two sets of influences at work. The first of these is the clear gap between the rhetoric of environmental education and practice. This was identified by Stevenson (1986), particularly in relation to action-based programmes. The second is the socio-political context of the time and the reconstruction of schooling and curriculum towards an objectives based, outputs driven model. The research here sought to make some small but real steps forward within an educational context that was clearly not conducive to them. This context is diametrically opposite to the vision of a conserver society based on stewardship, equity, cooperation and democracy mentioned earlier in this chapter (Fien, 1988). The next chapter is devoted to elaborating that context in which the research took place.

CHAPTER THREE: The New Zealand context

3.1 INTRODUCTION

Post War New Zealand prided itself on its concern for social justice and equality, a welfare state that provided free health care and education for all citizens, and an historical record of positive social innovation. In the last two decades those social structures have been progressively dismantled as successive governments have sought to establish a competitive enterprise economy in place of the welfare state. These efforts have been founded on social and political theories that view people as self-serving individuals (Codd, 1999). The policies that have resulted have increased inequity within New Zealand society by restructuring social processes in a way that ensures that people are placed in competition with each other. These changes render the agenda of capitalism very transparent and clearly expose the philosophical collision that is inevitable in an economic system in which wealth and power is increasingly concentrated in the hands of a few, operating in a political system which claims to serve the majority.

It is difficult in this social context, to view government as a benign agent for public good for, as Codd argues, the notion of the public good is foreign to the theories that have informed these changes. To explain how this research was shaped, it is necessary to provide a brief political history of New Zealand and within it to track changes in the structures of education and the curriculum. It is then important to place environmental education within those events. It is both the changes and the ideological direction of that change that is important in developing an understanding of the aims of research and the context in which it occurred.

3.2 A BRIEF POLITICAL HISTORY

John Ralston Saul (1997) argues that the world has been in an unacknowledged depression since 1973 when the Organization of Petroleum Exporting Countries (OPEC) sharply increased the price of oil in what became known as the 'oil shocks'. At this time New Zealand had a 'first past the post' electoral system dominated by two major parties. The National party was 'center right' while the Labour party was 'center left', as New

Zealanders understood the terms at the time. Labour was in office. Having been used to a series of cyclic fluctuations in primary product markets, the government failed to recognize a fundamental change in the world economy brought about by changing trade alliances and technology, and borrowed overseas to maintain full employment waiting for the upturn. When the National party gained office in the election of 1975 the new government continued the same strategy but were forced to become more and more interventionist in trying to manage the resultant economic tensions. Towards the end of their nine year term, and apparently aware of the depth of the problems now facing the country, a series of large scale industrial projects were undertaken costing billions of dollars. These included steel works expansions, synthetic petrol facilities, oil refinery expansions and a complex producing urea from natural gas. Some, if not all of these projects were pursued in the face of less than favorable market predictions for the commodities to be produced (Easton, 2001). A drop in global energy prices in the mid 1980s undermined many of the others. Easton makes the further point that, deserving of it or not, these initiatives have borne the blame for many subsequent events, particularly the need for dramatic economic reorganisation. By the end of this term of office in 1984 however, both prices and wages had been 'frozen' by government and Easton (*ibid*) reports that there were apparently no plans for what to do when the freeze expired. This was the situation when Labour won power in 1984.

Catalyzed by the fiscal crisis, and driven by key members of the party, the Treasury, and pressure from an increasingly powerful business lobby, this government began a neo-liberal restructuring of the economy and the state sector. The programme was pursued with renewed vigor when the National Party returned to office in 1990 and the momentum of change was only slightly moderated after the 1996 election. Seemingly in response to deep-seated concerns about the lack of accountability of government (key electoral promises had been broken by both parties in the previous decade) the country opted for an MMP electoral system in an attempt to make government more accountable to the electorate. Despite a mood for change in 1996, a significant minor party who had campaigned on a change platform, formed a coalition with the previous government and it was able to remain in office. It was not until 1999 that a Labour led coalition was able to regain the treasury benches. When it did so, and began a modest campaign of social repair, it faced an immediate crisis of business confidence and was forced to adopt a 'steady as she goes' approach to avoid the ramifications of lack of confidence from powerful transnational business interests on whom economic stability now appears to depend. Prior to the next general election in 2002 Labour enjoyed an outright majority in the polls and called an early election. A number of controversies arose prior to the election

concerning the release of genetically modified organisms. Despite this, Labour retained office in a coalition with a center-right party of almost non-existent pedigree that campaigned on an apolitical platform of 'common sense' and 'family values'.

Throughout this history there have been key policy initiatives that allow an analysis of the environmental position of the governments of the day. This analysis occurs in this chapter. Key educational events can also be linked to this history and reviewed in terms of the ideology of the government of the time. This too will occur in this chapter. Before conducting those reviews however, it is important to provide a general description of the neo-liberal ideology that has informed the policy of all the governments in New Zealand since 1984.

3.3 THE NATURE OF CHANGE

3.3.1 Neo-liberalism

The restructuring process that has occurred since 1984 has involved the reconstitution of employment law, the sale of state assets such as railways and telecommunications services to private owners, the establishment of state-owned enterprises in other areas such as electricity generation and supply, and an attempted reduction of government's role in the economy to a regulatory minimum. These neoliberal changes were described in the New Zealand Submission to the Rio Earth Summit in 1992 in the following terms:

The role of the State today is seen more as providing the policies and the legal and regulatory framework within which people themselves make their decisions, which affect their lives ...

The government has withdrawn from much of its direct involvement in development projects ... in the belief that private enterprise is more motivated and better equipped to make decisions resulting in the most effective use of resources...

Since about 1985, New Zealand has moved rapidly to allocate private property rights to publicly owned resources as part of Government's general withdrawal from involvement in commercial enterprise ...

Re-evaluation of the role of the state has extended to social policy. In the past, it was widely accepted that the state had a role to play in creating the socio-economic environment in which the population could achieve well-being ...

However, the escalating fiscal cost of these services has led to a re-examination of the role of the state in their delivery, and the balance between state involvement and individual and community responsibilities.

(Ministry for the Environment, 1992, pp. 91-92)

Statements of this nature often obscure more than they illuminate. For example, any notion of what "effective" use of resources might mean is absent from the passage. In general, the linking of words such as "effective" and "profitable" using the word enterprise, while plausible, is a very narrow and potentially dangerous use of language. Further, this rhetoric completely overlooks the role of the state as a collective owner on behalf of all its citizens and any notion of the state as an agent of public good (Saul, 1997; Codd, 1999). This abdication by the state of its responsibility to act in the interests of the majority of its citizens, expressed in terms of freedom of choice, is fundamental to the rhetoric of neo-liberalism and is informed by a number of theoretical sources including public choice theory, new public management theory, principal-agency theory and transactional cost analysis (Codd, 1999), that hinge on the view that humans are rational utility maximisers. The argument follows that to prevent the capture of public services by their providers who will seek to maximise their own interests, competition is required.

Based on these views, which emanate from the New Zealand Treasury and the Business Round Table (Peters & Marshall, 1996), a new infrastructure of contestation for resources and contracting for the provision of public services has arisen. These structures, while apparently devolving decision-making and responsibility, in fact give government tighter control over a range of social functions through the application of budget control and accountability regimes. Such structures derive from social theories that view human activity predominantly or exclusively in economic terms, what Codd refers to as economic rationalism. These theories appear to be based on a number of assumptions.

The first of these assumptions is that capitalism is the only way in which to conduct human economic activity. The second is that competition is the vital force of capitalism and is a force for good in its own right, a mechanism for the control of the self-seeking nature of individuals. The competitive market is then viewed as the 'natural' mechanism

by which individuals exercise their choices. Thus, human relations are reduced to economic transactions between individuals. These assumptions have become principles that are deeply, and almost invisibly, buried in the language of effectiveness, efficiency, enterprise, freedom and choice so central to the discourse of the New Right

The changes in New Zealand, built as they are on the notion of humans as "autonomous choosers" (O'Neill, 1997; Peters and Marshall, 1996) have resulted in social structures, such as competition in education, in which it has become very difficult to function co-operatively. Indeed, they are structures designed to develop in people the qualities of self-centredness assumed of them by the theoretical positions described above. Codd (1999) has described this as a culture of distrust. Thus, it is seen that the intentions of the government in these matters have been both deliberate and transparent.

The economic restructuring that occurred in New Zealand mirrored the policies of Reagan and Thatcher in the United States and Britain. Huckle (1983) described these changes as reactionary trends cloaked by liberal rhetoric. More recently Huckle (1993) described the same events as an attempt by capitalism to regenerate profitability. In considering some of the manifestations of these restructuring processes it is important to contrast them with central features of environmental education outlined in the previous chapter.

The 'culture of distrust' now pervades our lives. It sits in strong contrast to the ideas of *The Belgrade Charter*, *The Tbilisi Declaration*, the principles from the Earth Summit at Rio (Appendix One) and the treaty on environmental education from the NGO summit preceding the earth summit (Appendix Two). It is the antithesis of the vision of a conserver society articulated by Fien (1988). The neo-liberal ideology has been embedded in New Zealand institutions in complex and often subtle ways, and is now seen as normal by anyone without experience in the workplace prior to 1984.

The ways in which the assumptions of economic rationalism are expressed in policy texts, and in their enactment, must be considered at both the macro level of policy development and micro level of individual behaviour to be understood fully. A range of examples is used below to provide a general sense of how the ideologies of economic rationalism have been manifested in daily life and practice.

In the area of health, the government set up a series of regional Crown Health Enterprises (CHEs) in 1994. By cutting health spending government forced these CHEs to make decisions that rationed health services on its behalf. The CHEs had to take responsibility

for this process since they were responsible for health delivery, even though their actions were made necessary by the levels of funding imposed by government. The user-pays philosophy introduced as part of this process ensured that the wealthy had continued access to health care, access which became more difficult for those less well off. These structural changes were presented to the electorate under familiar rhetorical banners of *efficiency and choice*.

At the micro level, the market, the mechanism by which individual agency is supposedly exercised, requires money as a medium of participation. Over this period a substantial proportion of the population has been rendered poorer. Kelsey (1999) emphasizes how cuts in welfare in the early 1990s along with the increases in casual and part-time work have served to “feminize” poverty and that these forces have also hit Maori and the young particularly hard. Campbell (1998), reports that the poorest 60% of the population have become poorer, and thus their ability to participate in the market has been reduced. In contrast, the rich have improved their financial position, and have the wealth to enjoy the choice of services available in ‘the market’.

Changes in education have also been widespread and manifest many of the same aspects of economic rationalism. These include:

- The establishment of a Ministry of Education as a policy development arm of government.
- The devolution of policy enactment to individual school boards of trustees who have some of their funding embedded in contestable pools.
- The restructuring of curriculum to focus on a multiplicity of achievement objectives that constitute the formal curriculum.
- The establishment of an Education Review Office that monitors school compliance. Education Review Office (ERO) reports are made public as information about school quality.

Concurrent with these changes has been the encouragement of private providers into both education and health services, in order to provide competition for the state. Collectively these moves have forced ‘service providers’ into a regime of artificially created

competitive markets. This forces them to behave in the self-preserving fashion assumed of people by the ideological positions that informed the changes, and ensures that the underlying assumptions become self fulfilling.

In relation to education, these moves, and the structural changes which accompanied them, have resulted in the marketisation of education (Peters & Marshall, 1996) while simultaneously permitting increased control over the education system by government (Codd, McAlpine & Poskitt, 1995). Added to this is the emergence of a strong ideological bias in the curriculum. The Forward of the *New Zealand Curriculum Framework* (Ministry of Education, 1993a) stresses the need for schooling to prepare learners for the world of work in a competitive market economy. The Technology Curriculum Statement (Ministry of Education, 1995), O'Neill and Jolley (1996) argue, is informed by the values of the market economy and consumerism.

It should be recognized that the curriculum documents express a range of other learning imperatives in addition to these, and it is difficult to make claims about which of these are expressed most powerfully. The view taken here however, is that it is impossible to overlook the impact of economic rationalism in which schools and teachers are placed in competition with each other for students, while being evaluated by an external review agency in their enactment of an objectives-based curriculum that is visibly infused with the values of neo-liberalism.

Having considered two areas of government service provision in a general way through a brief review of health and education, it is appropriate to consider the area of environmental policy. This could be considered to lie at the crux of the tension between the technocentric policies of the New Right discussed above, and the more ecocentric goals of environmental concern which inform the field of environmental education.

3.3.2 Environmental policy

The *Environmental 2010 Strategy* (Ministry for the Environment, 1995) sets out the government's strategy on the environment. It states a clear objective for the environment, namely, "A clean healthy and unique environment, sustaining nature and people's needs and aspirations" (Ministry for the Environment, 1995, p. 7). Whether or not it is possible to maintain a healthy environment without placing limitations on our aspirations is a matter for debate. Nevertheless, the strategy outlines key conditions for the achievement of this vision. They include:

A competitive enterprise economy – a growing economy that can compete internationally and provide the resources for social needs and for protection of the environment.

Effective Laws and Policies – a body of laws and government policies that provide certainty and achieve environmental goals effectively and efficiently.

Information – information about the environment and the economic and social links with it, from research, monitoring and other sources to assist in sound decision-making by individuals, central and local government and business.

Social Participation – the active and informal contribution by people to processes whereby central and local government and the community establish the laws and policies that govern the management of the environment, and people participate as informed and responsible citizens and consumers in the market place.

(Ministry for the Environment, 1995, pp. 9 -10)

While there are some sound concepts in these statements, they are established within an economic determinist paradigm, imbued with the rhetoric of a competitive enterprise economy, choice and the market. This rhetoric reduces the environment to a set of economic transactions and reifies the market as *the* means by which humans conduct their interactions. A diagram supporting the explanations cited above includes the notion of “Internalising the Externalities” (ibid, p. 9). Externalities are factors such as clean air, healthy and diverse ecosystems, wilderness areas and healthy, safe cities that are often damaged by economic activity and consumption. This damage is rarely paid for by those that cause it. These ‘social costs’ are thus external to the cost charged for the offending goods and services. The argument continues that in order to care for the environment these external costs need to be included, that is, internalised in the cost equation. This involves, the argument proceeds, assessing these costs, including them in the price structure, and allowing market forces to correct the imbalance.

The logic is that the costs charged to consumers for environmental damage will be available to repair the damage or compensate those affected. As well, the higher cost structure will act to slow demand for damaging products (this assumes there are

alternatives available). Thus, within this ideology, all interactions are imagined to be reducible to market transactions.

These social changes have not been without contradictions however. Codd (personal comment, September 2003) points out that while in the United Kingdom the neo-liberal policies of the Thatcher government were linked to social conservatism and traditional values, in New Zealand there was an associated social liberalism. Thus, the 1980s saw the declaration of New Zealand as nuclear free, substantive efforts to make progress on Treaty of Waitangi settlements, and later the establishment of the Resource Management Act (New Zealand Government, 1991) which placed the environment, including the social environment, as central to development considerations. On the other hand, in the mid 1990s moves to log indigenous forest on the West Coast of the South Island showed a disregard for environmental sensitivities and economic concerns in ascendancy over concern for environmental protection.

3.3 SCHOOLS AND CURRICULUM

While schools have long been argued to reproduce society, the recent shifts described above have involved a reconstruction of schooling to serve the growing influence of enterprise ideologies within New Right discourse. Huckle (1983, 1993) argues that these changes were intended to increase the correspondence between schooling and economic production. In contrast, environmental education calls for changes to society in the opposite direction, towards co-operation, social justice and action on behalf of the environment.

Environmental education informed by the Tbilisi Declaration (UNESCO-UNEP, 1978) and Agenda 21 (UNCED, 1992) demands new patterns of behaviour towards the environment. It calls for solidarity (not competition) between countries, for recognition of the social and political processes that impact on the environment and an analysis of the real causes of environmental problems. A number of authors (O'Riordan, 1989; Huckle, 1993; Faber and O'Connor, 1995; Gough, 1997) express the view that capitalism is the cause of environmental problems through its reliance on exploitation of both people and the environment to generate profit. Environmental education thus stands as a potential challenge to both the role of schooling in society and to the role of capitalism as a way of

organising society. Gough (1997) exposes both the Tbilisi Declaration and Agenda 21 to critique, considering them deterministic and framed in language unsympathetic to the views of non-western cultures and of women. She still considers however, that they contain goals that challenge the nature of both schooling and society as they are currently constructed.

Despite the identification of environmental education as a socially transformative activity, and perhaps because of it, environmental education has had little impact on New Zealand schooling to date. This is confirmed by work by Bolstad et al. (2004). An understanding of the changes in the nature of the curriculum over the period since 1984 sheds light on the way views of the environment and its place within the curriculum have been structured so as not to interrupt the status quo.

3.5 ENVIRONMENT AND CURRICULUM

In 1988, the last liberal Minister of Education, Russell Marshall, released a curriculum discussion document at the end of a comprehensive curriculum consultation process. This statement (Department of Education, 1988) proposed new curriculum groupings including "Science, Environment and Technology". This approach was strongly democratic, involving the collection and collation of over 30,000 submissions (Bell, Jones & Carr, 1995). It also adopted what Print (1993) calls a "Broad Fields" curriculum design that softens the distinctions between traditional subjects and seeks to make links between them. Marshall was replaced in the education portfolio in 1988 by Prime Minister David Lange who gave priority to the reorganisation of educational administration known as Tomorrow's Schools.

After the Labour Party's election defeat in 1990, a new conservative National party minister resuscitated the process of curriculum reform and released a new draft curriculum framework (Ministry of Education, 1991). In this, "Science and Environment" formed one subject heading and "Technology" emerged as a new area, reflecting the government's agenda for education and the economy.

The statement that education was seen as an important area for enacting the government's policies was made in the Foreword of this document. This perhaps marked a new level of political involvement in the curriculum. The period in which this draft framework was

shaped into its final form coincided with the 1992 Earth Summit at Rio and the production of Agenda 21. As a signatory to Agenda 21, the New Zealand government undertook to:

...strive to update or prepare strategies aimed at integrating environment and development as a cross-cutting issue into education at all levels within the next three years.

(UNCED, 1992, p. 265)

When the final Curriculum Framework (Ministry of Education, 1993a) was published however, 'Environment' had been removed from the Essential Learning Area headings completely. Reference to it can only be found in the document where the following sentence occurs:

Other important areas of study such as the environment and culture and heritage are included in a number of essential learning areas.

(Ministry of Education, 1993a, p. 8)

It would be tempting to conclude that over this period, when the New Zealand government agreed to act on behalf of the environment and include it in the curriculum it was, effectively, written out. Whilst one could counter that conclusion by pointing out that these activities and undertakings involved the work of different Ministries, it would be reasonable to expect that commitments made by a government in a significant international agreement should infuse all its policy areas were that commitment genuine.

A more persuasive counter-argument may however be found by analysing the curriculum as a whole. Descriptors of the intended content of the individual National Curriculum Statements appear in *The Curriculum Framework* (Ministry of Education, 1993a, pp. 10-16). Within these the strongest references to the environment are found in the Social Sciences and Science descriptors. The latter emphasizes exploration of the environment, development of skills for responsible decision making, protection of the environment, consideration of resource use and exploration and of the ethical and values questions involved. The Social Science descriptor refers to democratic citizenship, concern for social justice, environmental respect and a consideration of how people interact with the environment, manage and mismanage resources. Given the Framework's requirement that learning experiences should make links between the various curriculum statements, these constitute a substantial mandate for environmental education, yet there are some noticeable gaps in this regard.

While the science curriculum statement (Ministry of Education, 1993b), has several direct references to the environment in its Achievement Aims (the statements which provide the overarching intentions for learning in each curriculum strand) the Social Studies document (Ministry of Education, 1997), has none outside its Place and Environment Strand. The references within that strand use the word environment without any reference to environmental issues or protection. The strongest statement, found in the science document, requires learners to “develop a responsibility for the guardianship of planet Earth and its resources” (Ministry of Education, 1993b, p. 106). Further support for environmental education goals are found in the Achievement Aims in the Technology (Ministry of Education, 1995) and Health and Physical Education (Ministry of Education, 1998) statements.

We see here then, a diminishing of the status of environmental education as a heading within Essential Learning Areas of the curriculum, but some strong references to it within individual curriculum statements. These references are dispersed, and as a result, seem likely to be neglected. It is useful to remember too, that the way environmental education should express itself in curriculum has long been problematic. As discussed in the previous chapter, there have been protracted debates on its place in the curriculum and in particular, its problematic linking with science. Environmental education is essentially an interdisciplinary endeavor that does not fit easily into a subject-based curriculum. It appears that this debate has had a considerable influence on the place of environmental education in the New Zealand curriculum.

David Wood, the Ministry of Education leader of the Curriculum Framework development project, shed some light on this issue. He reported that his team were very conscious of including the environment in the curriculum and spent considerable time debating the position it should occupy (Wood, personal communication, June, 2001). In various drafts it was linked with both Science and the Social Sciences. It was eventually decided that its best placement was as a cross-curricular theme as the statement in *The Curriculum Framework* (Ministry of Education, 1993a, p. 8) indicates. Wood reported that it was intended that a publication subsequent to the Framework would target the area of curriculum integration in support of this statement. The document has never materialised. Wood explained the circumstances behind these developments as follows: It was the view at the time that policy should be developed in a way that was not influenced by the views of ‘stakeholders’ but that it should emerge as a ‘pure’ expression of the Government’s intentions. In line with neo-liberal theory, the implementation of policy was considered to

be a separate activity to be conducted by a different arm of the Ministry. Wood reported that although *The Curriculum Framework* was intended to be followed up by a supporting document, key personnel changes at the time altered the balance of expertise and influence within the Ministry and this did not happen. Instead, the Framework document was passed over to the implementation section without any transfer of the philosophy that informed it. As evidence of this, Wood pointed out that while *The Curriculum Framework* identifies Language and Languages as an Essential Learning Area, the Curriculum Statement produced is limited to English (Ministry of Education, 1994).

Similarly, the Essential Learning Area of Social Sciences spawned a Curriculum Statement entitled *Social Studies in the New Zealand Curriculum* (Ministry of Education, 1997). This represents a deliberate narrowing of the scope of the Essential Learning Areas envisaged in *The Curriculum Framework*. During the implementation phase, the intention to provide supporting material on cross curriculum linking, including the area of the environment, which Wood reported his team considered of vital importance, was also lost. New Zealand had, as a signatory to Agenda 21 (UNCED, 1992), agreed to introduce environment and development education as a cross cutting theme in curriculum over the next three years. In fact, the profile of environment in the curriculum had been drastically reduced from its identification within an Essential Learning Area heading in the draft Curriculum Framework (Ministry of Education, 1991). One cannot look at this history and categorically say that the de-emphasizing of the environment was deliberate (although the evidence suggests that it must have been). It is safe to say however, that the application of economic rationalist ideology to curriculum development assisted this.

Two further points need to be made here. The first is that *The Curriculum Framework* (Ministry of Education, 1993a) has never been ratified by formal notice published in the Education Gazette. In relation to this, Wood reported that the implications of the Framework presented problems that were considered too difficult at the time. As examples, he cited the implications that it would apply to all schools including integrated and private institutions, and that its imperatives for curriculum linking posed huge challenges for secondary schools (Wood, personal communications, June 2001). The second is that *The Curriculum Framework* (Ministry of Education, 1993a) was given legal status in the National Educational Guidelines (NEGS) and National Administrative Guidelines (NAGS) published in 1993 (Ministry of Education, 1993c); however, subsequent new NEGS and NAGS (Ministry of Education, 1999b) made reference only to National Curriculum Statements. It thus appears that *The New Zealand Curriculum Framework* (Ministry of Education, 1993a) has no formal legal status and this further diminished the

role of the environment in the curriculum to scattered references in the National Curriculum Statements. Despite this however, these references to the environment are affirmed in the Environmental Education Strategy (Ministry for the Environment, 1998) and more recently by statements by Ministry of Education officers. Frances Kelly, reporting to a seminar at Massey University on the New Zealand Curriculum Stocktake, replied in response to the author's question on the status of the Curriculum Framework, that it "remains the guiding policy statement for the New Zealand Curriculum" (Kelly, personal communication, Feb 20th, 2003).

While this explanation is a useful insight, it cannot be seen in isolation because the lack of official commitment to environmental education has been evident in more recent publications. In early 1995, a contract was let by the Ministry of Education for the writing of guidelines for environmental education. A draft outline was circulated (Law & Baker, 1995), however, the guidelines, intended for publication in late 1995 did not appear (see Law & Baker, 1997). The three-year period for action specified in the Rio Declaration had thus elapsed with the Government's undertaking unfulfilled.

In 1998, an environmental education strategy document, *Learning to Care for Our Environment* (Ministry for the Environment, 1998) emerged. This document was signed by the Ministers and Associate Ministers of Education and for the Environment. It emphasized the importance of enacting the environmental statements found in the New Zealand Curriculum Framework (Ministry of Education, 1993a) and its supporting Curriculum Statements. When guidelines for environmental education were finally published, however, (Ministry of Education, 1999a) the Secretary for Education made it clear in his Foreword to the document that the enactment of environmental education was not compulsory.

Were the Secretary, and the Ministry in general, genuinely committed to environmental education, even without making environmental education mandatory, the import of this message could have substantially changed by replacing the sentence:

The extent to which environmental education is incorporated within the curriculum will continue to be determined by the board of trustees in each school.

(Ministry of Education, 1999a, p. 5)

A statement along the following lines could have been made: *I would draw the attention of teachers, school planners and Boards of Trustees to the strong references to the environment found in a number of Curriculum Statements. I commend to you the value of the environment and environmental issues as relevant and meaningful learning contexts with the potential to enrich the whole curriculum. The environment is perhaps THE issue of our time and I hope that schools will strive to apply these guidelines to their interpretation of the New Zealand Curriculum so that environmental education becomes a fundamental component of the learning of all children in New Zealand Schools.* (A statement of this tenor is noticeably absent from the curriculum). The Ministry could have further endorsed the guidelines via the Education Review Office by incorporating reference to them in the school review process.

Such a statement would have done several things. Apart from providing affirmation of, and impetus for, the Guidelines document it would have made sense of the earlier sentence from the Curriculum Framework that notes the inclusion of environment in several learning areas (Ministry of Education, 1993a, p. 8). It would have built on the environmental education strategy (Ministry for the Environment, 1998) and met the commitment made at Rio. The alternative opening statement above, or something similar, would have tied together all the disparate references mentioned above in a coherent and purposeful way. It stands in sharp contrast to what was actually written

This thesis has identified the 'something rather than nothing' debate as in issue to be conscious of in considering improved practice. The guidelines are by no means perfect and this may reflect the level of official commitment to environmental education. They may however, provide the catalyst that is needed to trigger action at last. These issues need to be raised in the context of a more detailed review of the document and this is central to the next section.

3.6 THE GUIDELINES FOR ENVIRONMENTAL EDUCATION

Following the Foreword, the Introduction to the Guidelines is little more than self-congratulation. It lists the initiatives the Government has been involved in, commitments to international agreements and closes with claims that the document provides "an effective means of achieving the Government's goals for both education and the environment" (Ministry of Education, 1999a, p. 7). This ambiguous statement confirms the

political nature of both schooling and the environment, and reflects a top-down, instrumental approach. Most of the quotes in this and the following brief section on 'the importance of environmental education' are taken from the 2010 strategy (Ministry for the Environment, 1995) and the environmental education strategy (Ministry for the Environment, 1998), already mentioned, and are thus largely self referential.

The working core of the document is composed of three parts: the Aims; the Key Concepts; and the Key Aspects. The Aims can be recognised as derived from the Tbilisi Declaration's Objectives, and emphasise awareness and sensitivity, knowledge and understanding, attitudes and values, skills, and participation and action. While it has already been noted in Chapter Two that the links between most of these aims and 'action' are complex (Kollmuss & Agyeman, 2002), the Aims limit that action to "addressing environmental issues" (Ministry of Education, 1999a, p. 9) in contrast to the Tbilisi Declaration's reference to preventing and solving environmental problems.

The Key Concepts of Interdependence, Sustainability, Biodiversity and Personal and Social Responsibility for Action are potentially very strong. In developing the concept of Interdependence, the Guidelines refer to Fien and Gough (1996) and also invoke the Maori concept of the relationships between all things through shared ancestry with Ranginui and Papatuanuku. However, sustainability is not defined, and the section addressing it lapses into the self-congratulatory tone found in the Introduction. Biodiversity is simply and clearly explained but the concepts of responsibility are phrased in terms of "lifestyle choices" and limited to deciding what action "could be taken on a range of environmental issues and problems" (Ministry of Education, 1999a, p. 13). Thus, while the concepts are sound, the way they are supported is of little concrete help to a novice teacher.

The Key Aspects of education *in, about* and *for* the environment are introduced in a page. The action component stressed in the work discussed in Chapter Two is introduced as follows:

Education *for* the environment is intrinsically linked to the "affective" aspects of environmental education as it deals with people's emotions and their willingness to make lifestyle choices that help maintain and improve the quality of the environment.

(Ministry of Education, 1999a, p. 14)

The remaining two paragraphs explain how this is supported by education *about* and *in* the environment. This is hardly a challenging statement!

The next section outlining how environmental education fits in schools, mentions how school policies should be consistent with other educational messages and goes on to link the content of the Guidelines to the Curriculum Framework (Ministry of Education, 1993a). Following that, a linear, eight step, curriculum development model is outlined under the heading, Planning Environmental Education Programmes Within the New Zealand Curriculum Framework. This is followed by a series of appendices. The first lists potential topics and includes issues such as war, famine, energy consumption and rights of indigenous peoples in an array of local, national and global issues.

The largest part of the document is the second appendix, listing achievement objectives at each of the eight curriculum levels, in each subject area, in both English and Maori language curricula. It is noticeable here that by addressing the goals of the curriculum at the level of Objectives, the powerful overview statements often contained in the Achievement Aims (such as the sense of responsibility for the guardianship of the planet mentioned in the science curriculum) are lost. Appendix Three lists useful resource organisations, while Appendix Four provides a number of sample topics planned, in skeletal form, and focuses on the learning objectives to be achieved.

Overall the document provides a useful support for someone who knows what environmental education is about. Its Aims, though neutralised slightly, are reasonable. Its Key Concepts are potentially very good, while the Key Aspects are traditional in the field. Its fault is that the explanations are unhelpful, platitudinous at best, and self-congratulatory and ideologically biased at worst. Overall the document is a 'policy statement' that is top-down in nature and designed to achieve the Government's goals. The fact that it is not compulsory raises a question about the nature of those goals.

In short the *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999a) is a document that is unlikely to be helpful to busy teachers. This was indicated to the original contractors whose consultation over an early draft (Law & Baker, 1997) indicated that it was likely to gather dust on a shelf. While some resources have been devoted to introducing the Guidelines into schools, priorities have been on numeracy and literacy as signalled in the NEGS and the NAGS (Ministry of Education, 1999b). While the Guidelines could hardly be described as an inspiring document, it does provide a leverage point for someone who is already committed. It is a Ministry document that

teachers can use to support environmental education in schools. The document is in a way a cameo of the policy history, in that the structure and content are contradictory. There are bold headings that are unsupported by the content. I am reminded of Elliott's (1995) commentary of an English initiative in which environmental education was discouraged at the core of the curriculum and encouraged at the periphery. Elliott admits to a tendency to subscribe to conspiracy theories, however, I suggest Fien's (1993b) notion of the 'curriculum problem' is more useful. In Fien's terms, it is unlikely that a government will mandate a curriculum that challenges existing patterns of behaviour in society that schools are intended to reproduce.

3.7 SUMMARISING THE CONTEXT

Although it is difficult to draw conclusions about the causes of social change from this confused and contradictory picture, it is clear that over the last five electoral terms of the 20th century, governments across the political spectrum have committed themselves to an unremitting agenda of structural and social change. In comparison to the energy and dynamism they have maintained in the pursuit of an economic rationalist utopia, their commitment to the environment has, I assert, been less visible. This returns us to the issues raised earlier in this section, namely, the fundamental opposition of purpose between the ideologies that underpin economic rationalism and concern for the public good as expressed in the goals of environmental education. This in turn, refocuses attention on the political tensions produced by these oppositional forces on the role of government and the contradictory role of the State.

The gap between public political stances for the environment, and the level of tangible support given to back those stances, arises from the inherently contradictory role of the state in a capitalist democracy. On the one hand, the state must create the conditions for economic activity and capital accumulation, while on the other hand, it must have the legitimacy of electoral support. This involves mitigating the social and environmental costs of economic activity (Dale, 1989). It has been claimed that in the years since 1984 that the New Zealand electorate has accepted that the costs of social equity and environmental protection are too high (Ministry for the Environment, 1992). Easton (2001, p. 180) citing a New Zealand study of values (Perry and Webster, 1999), suggests that this is untrue and that neo-liberal reform was undertaken by an electoral minority exploiting the weaknesses of the 'first past the post' electoral system.

These were the socio-political realities in New Zealand as the century drew to its close. They involved the intrusion of political ideologies that work against the interest of the majority of citizens and the environment in most areas of life. They present problems of a substantial nature for educators in general, and environmental educators in particular. The shift in power that occurred at the general election of December 1999 offered new hope however. A Labour coalition government, supported by the first ever Green Party members in Parliament made some significant initiatives relating to the environment. Having placed a moratorium on the logging of indigenous forest on the West Coast of the South Island, to which Labour had made a pre-election commitment, the government then committed a \$130 million economic development package to the region for alternative development. Further, \$187 million was devoted to a Biodiversity Strategy for protecting threatened species and ecosystems over the next five years. Support for environmental education also increased. The amount committed to the training programme undertaken by the previous government was increased by half a million dollars and later, in July 2002, a \$5.9 million funding initiative to provide support was announced. Shortly after this however the Green Party announced that should the government lift its moratorium on the release of genetically modified organisms it would withdraw its support. The government turned on its former ally over this issue and severely undermined the Greens in the election campaign that followed. After the election Labour chose not to include the Greens in its new coalition. These events showed that while the Labour Party was prepared to make substantial accommodations for the environment, it remained at heart strongly technocentric (O'Riordan, 1989) and would not take any steps that might compromise economic growth, in this case, the perceived bonanza in genetic technology.

The most recent chapter of this political and curriculum history has unfolded since the 2002 election. Having formed a coalition with a center-right minority party the government seems to have drifted imperceptibly but distinctly toward the political right. The *Curriculum Stocktake Report* (Ministry of Education, 2002) released in September of that year identifies sustainability is one of a number of principles against which the curriculum should be audited. However, in the *Education Priorities for New Zealand* (New Zealand Government, 2003) released in May 2003 and setting educational priorities for the period, 2003 to 2006, sustainability is not mentioned. Instead complete faith is placed in the global economy to provide prosperity for all, as long as New Zealand can lift its education performance up the international education league tables and 'surf' the knowledge wave. The Educational Priorities document is a further declaration that the Government gives real priority to the economy ahead of concern for people or the environment.

The range of events and the changes in New Zealand society have in general then, shown a lack of real concern for issues of social and environmental justice as both Easton (2001) and Kelsey (1999) argue. Under these neo-liberal policies, global and national environmental and social problems have been clearly worsening.

My own growing concern as an educator has been how to act to address these issues. This research has been pursued in the belief that there are ways forward based on three basic propositions about environmental education.

One: Environmental education is a political issue as much as an educational one, perhaps more so. It is my first proposition that to fail to acknowledge this is to fail to understand the fundamentally political nature of environmental problems and therefore to be ineffective in attempting to redress them.

Two: Having acknowledged the political nature of environmental education, it must also be acknowledged that it is a socially reconstructive activity, one that seeks to change society. Given the political forces described above, that is a radical stance. If you are an environmentalist you cannot avoid being radical.

Three: Failure to acknowledge both of the previous two issues renders any attempts at environmental action of questionable value since the actor will be unknowingly or uncritically passing on the values and assumptions of competition and the market that are buried in the current rhetoric of government policy.

While these issues have been informed by an analysis of the goals of environmental education, they are perhaps equally true of any educational process. Questions of What? How? and For whom? arise in most educational contexts and their analysis confronts social and political processes. Education is inherently political. These conclusions have informed the way my environmental education teaching, and the research that arose from it, were constructed and conducted.

3.8 CHALLENGES FOR THE STUDY

It is clear from the material canvassed thus far, that developing environmental education in a way that is faithful to the foundation goals of the field presents a number of challenges. One of the most obvious of these is the complexity that arises from the interdependence of social and political factors with issues relating to the natural environment. It should be noted that the links between social and environmental justice are established in the first sentence of the Belgrade Charter (UNESCO–UNEP, 1976). Environmental education and environmental issues arise at a range of levels, local, national and global, giving vast scope to these complex inter-relationships. The New Zealand Guidelines for Environmental Education (Ministry of Education, 1999a, p. 21-22) address this in listing environmental issues that include war, poverty and the rights of indigenous peoples at these three levels.

The scope of these issues demands the interdisciplinary approach described in the Tbilisi Declaration (UNESCO–UNEP, 1978) and this approach has been problematic in New Zealand schools, especially secondary schools, since at least the time of the Thomas Report (Department of Education, 1943) as Whitehead (1974) discussed.

The interdisciplinary nature of environmental education has sparked debate about curriculum enactment. In primary schools, the inclusion of environmental education references across the curriculum is not an impediment to progress because teachers can work in a cross-curriculum way. It is a significant problem in secondary schools however, because they are structured around traditional subjects. The likelihood of one teacher addressing more than one subject with a particular class in a secondary school is very low. Further, secondary school exit qualifications are subject based. The issue of how environmental education can be accommodated within the curriculum is thus an issue of central importance.

The issues of low status and curriculum difficulty highlight what has become known as the Rhetoric-Reality gap mentioned previously (Stevenson, 1986; Palmer, 1998; Robertson & Krugly-Smolkska, 1997). It captures the unfortunate fact that the ideas and proposals in the literature and in policy are not matched by the reality of common practice. In reviewing what he calls lighthouse examples of exemplary practice, and lamenting the fact that they are so few, Fien (1993a) refers to the same phenomenon as part of the

“curriculum problem”, that is, the tension that arises as a result of attempting to undertake socially critical activity within an agency of social reproduction, the school.

This brings the central issue of this thesis into focus, how can teachers be empowered to take on transformative educational practice within the context of schooling in general, and in New Zealand schools in particular, given that they have been restructured to focus on economic competitiveness? The environmental education literature exhibits frustration at lack of progress and by repeated calls for new theories, and this appears to signal a general lack of progress. What is clear, is that many of the questions that vex environmental educators are yet to be answered. The work here sets out to continue the attempt to do so. The aim is to make a start, not perfection, but something rather than nothing. The *Environmental Education Guidelines* are a potential help but it must be remembered, that these appeared after this work had commenced and were not significant in shaping its early stages.

3.9 MOVING FORWARD

The environmental education literature, while on one hand evincing a sense of frustration, is not bereft of ideas for exploration. There seems to be little alternative to a critical approach to society in educational endeavours that seek to address environmental and social issues. If it has been unsuccessful so far, as Walker (1997) and Outlon and Scott (2000) suggest, this is perhaps because concrete strategies for empowering teachers to adopt critical pedagogies have yet to be developed.

In proceeding to explore some concrete strategies for doing this, the thesis is informed by the ideas of Giroux (1985), and Aronowitz and Giroux (1985), emphasised by Fien, (1993a). These suggest in the first instance that we should learn to think in terms of what we can do and develop a ‘language of possibility’ rather than being disempowered by a language of critique. The second is the insistence that teachers can act as transformative intellectuals and bring about change through and within their daily practice. As mentioned, the challenge is to learn ways to do this.

The New Zealand curriculum has been rewritten since 1992 in a way that tunes it to the agenda of the right (Codd, McAlpine & Poskitt, 1995; O’Neill, 1997; O’Neill & Jolley, 1997;

Openshaw, 1997). Despite this, it retains many statements of intent that provide potential for confronting those values, that is, possibilities. It urges teachers to make links across the curriculum and potentially transformative statements found throughout the curriculum can be taken together to form a mandate for transformative action. The English curriculum stresses critical thinking. Guardianship is required in Science; social justice appears in Social Studies; as do notions of environmental health in the Health and Physical Education Curriculum. Even the widely criticised Technology Curriculum invites students to consider the impact of technology on people and the environment.

Central to environmental education is the identification and analysis of the values positions inherent in both environmental goals and in the positions taken by protagonists in environmental issues. Teaching in general, and teaching environmental education in particular, should involve making problematic, previously unchallenged social structures such as the nature of democracy, notions of a just and equitable society, the responsibilities of society to its members, along with more traditional environmental topics and issues. I assert that this must be done in full knowledge that this is radical teaching of a politically critical nature and that the rhetoric of social justice and environmental concern that appears in the New Zealand curriculum is being made to live in a way perhaps not envisaged by policy makers. This can only be sustained by a thorough knowledge of the curriculum and by sound programmes that demonstrably target a wide range of curriculum goals as well as environmental education goals. Doing so must also model exemplary educational practice. Setting out to learn how to do these things was the genesis of this research.

CHAPTER FOUR: Theorising a Methodology

4.1 INTRODUCTION

This work did not begin as a doctoral study but as a pragmatic attempt to improve environmental education practice. It arose from attempting to establish the usefulness of an undergraduate course by following the paths of some of those involved in it. This was done in the belief that the course was a good one, that teachers who had done it would use the ideas to inform their practice, and that as a result of their contribution, the course would be fine-tuned and enriched. Teachers in this initial phase did not teach environmental education as anticipated and in response new attempts to understand why were undertaken.

As the research proceeded, new opportunities arose to work with experienced teachers and include some of them in the widening spread of the research. It was initially anticipated that subsequent to the initial observation phases, opportunities would arise to be involved in collaborative work with teachers and that this would be informed by the principles of action research. Robottom and Hart (1993) have convincingly argued that this approach is well suited to the philosophy and pedagogical intentions of environmental education.

At the outset then, I had been hopeful that the work that had been done in pre-service teacher education would 'empower' teachers to make a start in environmental education and that my support would assist this, thus improving my own practice. This simply did not happen. Instead, for most of the period in which research with teachers was pursued, nothing of substance occurred. As a result, the question of how teachers might be empowered to become active in environmental education was seen in a new light and the research was re-conceptualised as a doctoral study using Problem-Based Methodology (PBM) as a starting point for doing so. Elaborating the PBM approach is the substance of this chapter.

4.2 PROBLEM-BASED METHODOLOGY

Problem-Based Methodology is an approach to research specifically designed for solving educational problems. Robinson (1993) argues the case for PBM in depth spending upwards of 250 pages outlining and illustrating Problem Based Methodology (PBM). In the first section of her book, she argues the suitability of PBM for solving educational problems. She does not see problems as necessarily negative and argues that they may be neutral, perhaps in the form of a goal to be achieved, but distinguishes simple acceptance of a solution from the development of an effective solution. In the second section she suggests that PBM is not comfortable in any of the main research traditions, all of which she argues have severe limitations of application to the world of educational practice. As part of the methodological analysis undertaken in this thesis, these claims are subjected to closer scrutiny.

One of the issues central to PBM is the understanding of practitioners' theories of action that can be viewed as their current attempts at problem solving. Many attempts at educational change fail, Robinson argues, because researchers fail to account for and accommodate practitioners' theories of action, or untangle the ways in which these theories may differ from practitioners' espoused theories on the subject at hand. Many educational problems are of course difficult to resolve because they are complex and "ill structured". Robinson concludes:

An ill structured problem is unsolvable as such, because there are too many areas in which to search for information, and insufficient constraints on what counts as a solution.

(Robinson, 1993, p. 27)

Developing a solution requires that the ill structured, under theorised problem be clarified and theorised into a "well-structured" problem. This may involve weighing the merits of alternative approaches to its solution or improvement. It is in this area that PBM seeks to escape from conformity with previous solution theories or the range of non-rational, ideological or vested interest approaches that often constrain practice. In response, Robinson (1993) suggests a series of criteria for appraising potential solutions using four headings. These headings: explanatory accuracy, effectiveness, coherence, and improvability, provide a flexible, non-prescriptive and inter-related framework for evaluating solutions.

She argues that good responses to educational problems require an accurate portrayal of the problem to begin with, that theories for improvement must not only address the issues (based on that accurate understanding) in a way that is effective, but must also be coherent with other activities so that in solving one problem others are not created. Finally the solution must be open to further improvement. In discussing this issue, Robinson draws attention to the distinction between single-loop learning that examines a solution against the constraint structure in operation, and double-loop learning in which the values and assumptions that contribute to constraints are examined. She argues that solutions must not contain features that inhibit inquiry into their own tenets and inhibit revision. She further emphasises the need for openness in which claims made in a solution theory are public, as is the evidence supporting such claims or theories, while possible disconfirming evidence is also publicly sought and evaluated.

Put simply, to solve a problem effectively requires an accurate description of the problem and an understanding of the circumstances (constraint structure) that the solution must fit. Further solutions must be consistent with what is already happening so that new problems are not created. Finally the solution must be such that it is open to public scrutiny and to improvement and does not foreclose on further analysis and new solutions. This approach is strongly coherent with the Popperian view (Popper, 1975) reviewed by Swann (1999) in which progress is made by error elimination through exposing theories to ongoing examination.

In pursuing problem solutions built on practitioners' theories, Robinson (1993) emphasises the nature of social relations that should inform PBM. She emphasises ongoing "critical dialogue" amongst all involved but especially between researchers and practitioners. This emphasises social relations of inquiry that are conducive to the development of a shared and adequate theory of the problem and a shared "commitment to its resolution" (Robinson, 1993, p. 67).

This last aspect of PBM (or perhaps any area of research or innovation) is potentially the most difficult because it requires that those involved put aside issues of personal interest, ambition, institutional politics, likes and dislikes and share a commitment in the interests of a wider group. This probably also involves the development of shared values and meanings and none of these tasks are simple. These are challenges that sit comfortably with research in environmental education. PBM also spans a number of research traditions in that it seeks to change practice, yet at the same time places value on the understanding

of practitioners' theories of action and sees understanding these as central to theoretical accuracy and improvement through critical dialogue. It also has the capacity for challenge in going beyond first-loop learning about problems into reconsideration of assumptions and values that underpin the problem or constrain responses to it. This issue is pursued in more detail in section 4.4. On initial examination then, PBM seems well suited to the situation evident in this research in which environmental education initiatives did not occur in schools.

Robinson (1993) work draws heavily on the work of Argyris and Schön and it is useful to review this briefly before proceeding with a detailed description of PBM. Their work has a strong behaviourist and 'scientific' emphasis. They discuss behavioural learning that:

Involves the experience based modification of some elements of theories-in-use, governing variables, action strategies, or assumptions.

(Argyris & Schön, 1974, p. 18)

In identifying two levels, or loops, of learning, they draw on much earlier work by Ashby (1952). These levels involve "new action strategies to achieve governing variables", in single-loop learning, and learning to "change our governing variables", in double-loop learning (Argyris & Schön, 1974, p. 18). They add; "the theory builder becomes a prisoner of his (sic) programs if he allows them to continue unexamined indefinitely".

Despite the obvious epistemological difference between my approach and theirs, there is a great deal in Argyris and Schön's (1974) work that is useful and Robinson has summarized this material well. They have faith in a rationality in which people function according to known theories that they test and modify through daily experience. They acknowledge tension from outside the institution at work on professionals. This they see, citing Brooks, as induced by technological change that "creates a race between opportunities and expectations" (Brooks, 1967, in Argyris & Schön, 1974, pp. 143-144).

Two points need emphasis here. Argyris and Schön's (1974) work is about educating professionals in general and not about education in particular. Secondly, although Robinson (1993) rejects sociological macro theorizing, and while Argyris and Schön's (1974) work predates the new sociology of education, Argyris and Schön, 1974 are not blind to the macro context.

For example, they highlight the growing emphasis on technical rationality that they encapsulate as ‘technique’. They summarize a range of responses to an unhealthy emphasis on technique:

Others would substitute faith in essential human values instead of technique. Palmer (1973) urges that professionals rededicate themselves to the original values of their profession – health, justice, truth. Rededication is commendable, but this remedy is incomplete. How is such dedication to be argued or lived out? Such proposals are disconnected from a theory of effective practice.

(Argyris & Schön, 1974, p. 171)

They continue by describing Ralph Nader’s approach in the United States as “confronting the manipulators of technique” by creating “counterbalancing power centers”, uniting the “victims of technique” in a movement built “around advocacy of the rights of the less powerful, whose lives are affected by the application of technique”. They describe this movement as “well matched to the evils it wishes to confront” (Argyris & Schön, 1974, p. 171). This has much in common with the approach taken in this thesis although there is no political analysis in the work of Argyris and Schön, and, having made these points, they return to the discussion of models to improve professional practice.

The work in this thesis draws heavily on Robinson’s (1993) PBM, and acknowledges the particular value of the methodological analysis she contributes in developing it. None-the-less, this thesis is in some ways closer to the work of Argyris and Schön than to hers. They (Argyris & Schön, 1974, p. 59) emphasize testing in order, “to avoid self-sealing theories of action” and this emerges in PBM as the criterion of improvability. However, to reject a macro analysis, as Robinson does, is surely to become “self-sealing” through failure to develop a full description of the problem or issue. This thesis builds on the work of Argyris and Schön (1974) and Robinson (1993), but, based on an improved understanding of the educational context developed in the intervening years, strives to expand on the earlier approach by also considering the macro context in a way that Robinson chooses not to do. This is a methodological path that diverges from PBM.

Despite this criticism, Problem-based Methodology provides a sound theoretical framework for beginning to conceptualise the research being undertaken here. The areas where the fit between PBM and this research requires examination are the focus of the next section. The ‘problem’ central to this work is clearly a complex one and it is also quite

clearly “ill-structured”. Developing a solution, or perhaps a range of solution strategies, requires in the first instance, an understanding of the nature of the problem and developing an adequate descriptive theory. While the environmental crisis is itself a matter of extreme complexity, the goals for environmental education from the Tbilisi Declaration (UNESCO-UNEP, 1978) provide guidance and direction, as do the Guidelines for Environmental Education (Ministry of Education 1999a). These form a potential framework for guiding solutions.

Considered in this way, guided by PBM, the task of this research is to accurately describe the environmental education problem and clarify the constraint structure that limits and also guides possible solutions. This seems simple enough. Environmental education activities need to meet the goals set out in the Tbilisi Declaration and interpreted in the Guidelines (Ministry of Education, 1999a), and as well, meet the Objectives of the New Zealand Curriculum, while also being manageable and realistic for teachers. Responses to this challenge should involve critical dialogue between those involved, not create further problems, and remain open to further improvement. However, the condition of coherence, that further problems are not created, must be treated with caution since environmental education requires personal and social change.

There are two sets of issues here, and these hint at some limitations to Problem-Based Methodology (PBM). One is that if environmental education activity made students question aspects of schooling, it might be seen through some eyes as creating further problems. On the other hand, it could be seen as a sign of real participatory education. The second set of issues is that there may not be either a general description of, or a general solution to the problem. The limitations of PBM are that it is conceived as a method of solving micro-level educational problems within individual schools. In contrast, environmental education suggests general social change. These issues will be addressed by developing an expanded approach to PBM in a later chapter.

4.3 PROBLEM DESCRIPTION

4.3.1 The first stage

The methods used to gather information about teachers’ experiences related to environmental education in this research involved an initial round of case studies followed

by an evolving set of responses to the lack of activity in environmental education that teachers reported. Although the methods are superficially straight forward, involving a range of semi-structured interviews, they are methodologically quite complex. This is because the data-gathering phase must be seen in conjunction with the reflection and theorising that accompanied and followed it. It is the intention in this section to unravel that complexity and to identify the range of research perspectives that inform the problem description phase of this research.

Initial information gathering

In the first instance, both methodologically and chronologically the approach taken is ethnographic. Wolcott (1973, in Berg, 2001) defines ethnography as the science of cultural description. In this case the culture to be studied is that of teaching in New Zealand schools. Ethnography is traditionally an anthropological approach in which the researcher seeks to understand another culture from the insider's perspective. Within the social sciences in general however this approach has been used to understand 'subculture groups' within a society (Berg, 2001) as well as other cultures. In this research the initial intention was to understand the experiences of beginning teachers, specifically the sample group who had expressed an intention to include environmental education activities in their work. This took the form of case studies in which each teacher was interviewed at intervals over a two-year period.

This phase of the research followed teachers into schools as they made the transition from training to teaching and was undertaken on a very tentative basis without major preconceptions about the kind of experiences they might have. The initial approach was optimistic in mood and sought to enrich or modify the environmental education course that the teachers had taken, informed by the reality of their teaching experiences. By the time the second interview in this process had been completed it was clear that there was little evidence to sustain optimism as none of the teachers had planned and taught environmental education topics. This influenced two shifts in approach. The first of these caused a sharper and more purposeful bias on the interview so as to not only seek information about the teachers' reflections about themselves and their experiences, but also to seek to understand something of the school context which constrained, influenced or shaped both their actions and the ways in which they thought about their work. This continues to lie within an ethnographic tradition. It is also the beginning of second loop reflection within PBM.

The second shift in approach arose from the emerging sense that there was an impasse here and that to make progress with environmental education in schools, some way or ways over, under, around or through this impasse needed to be found. The term “impasse” is used here to capture the complexity of the barriers that seemed to constrain practice, and perhaps contribute to the rhetoric-reality gap.

Problem to impasse

It would be tempting to say ‘problem’, but that would appear to vastly oversimplify the situation. The strategies and ideas from the environmental education course teachers had done seemed to have dropped from view and to have had no influence at all on their practice. To add to this, a whole series of contextual barriers seemed to exist that the teachers appeared to have no capacity to deal with. This set of difficulties, occurring in different schools in different manifestations, was seen as more than a micro-problem in a single school as is anticipated within PBM. The word ‘impasse’ is chosen to indicate a problem on a completely different scale, a general one that has its origins in a wider and complex societal context.

As a result of this realisation, a conscious effort to understand and confront this ‘impasse’ began. Such an approach goes beyond ethnography that seeks only to describe situations but not to bring about change. This notion of improvement is a central tenet of PBM that suits it as an approach to this research. As a result, the case study work is seen as ethnographic in that it set out to understand the culture of teaching from the insider’s perspective, but the research as a whole is not ethnographic.

In seeking to describe, understand and act to make a difference, an approach was adopted that parallels Problem-Based Methodology (PBM) described by Robinson (1993). PBM seeks to improve educational practice by resolving problems. Thus, the ethnographic initial phase of the research is conceptualised within a more complex and far-reaching methodological approach developed from PBM.

4.3.2 Increasing Methodological Complexity

The emergence of this ‘problem’ solving agenda places a different perspective on the research process. The kind of problem examples used by Robinson (1993), include professional development programmes within schools and the dilemmas of participative management. These are problems that are within the agency of the school’s personnel to

resolve. In contrast the impasse regarding environmental education involves micro, interpersonal interactions and school organisational decisions as well as the wider scope issues and events of curriculum, school review and the like. Finally it perhaps involves macro-level considerations such as the role of schools as agencies of social reproduction in industrial societies. Thus, the use of the word problem in PBM is somewhat narrow and the use of inverted commas above signals it as having a wider meaning in this instance, that of the impasse previously mentioned.

As a result of this, the research has evolved beyond ethnographic understanding. The case studies became more comparative in that they are compared and contrasted in searching for insights that might reveal causal factors impinging on teachers' work. Another result is a broadening of the scope of the project in an attempt to try to understand the nature of the impasse. As the data accumulated, some tentative sense of the nature of the issues involved began to emerge. In response to these, new phases of the research with teachers developed. These provided new insights and confirmations of the nature of the 'problem'. Some attempts at working with teachers were undertaken. These attempts to solve problems at the micro-level assisted the understanding of the impasse at the macro level. In response, an expanded Problem-Based Methodology needed to be theorised.

4.3.3 A Composite Methodology

In commencing data gathering with beginning teachers in an ethnographic way, the scope of the problem of how to empower teachers began to emerge. No answers, simplification, or improved clarity of understanding were initially evident. Further data gathering involved interviewing a wider selection of teachers, and sought a deeper understanding of teachers' professional lives relating to environmental education. This was not simply a matter of ascertaining teachers' espoused theories on the subject and attempting to determine how these relate to their theories-in-action. In many cases, any emergent theories teachers (particularly younger ones) may have had initially, seemed to have been overwhelmed by the culture of education they entered. Thus, in many instances the first research challenge was to understand the forces at work within schools that caused this.

In terms of PBM, the research thus sought to understand the problem and improve its 'structuredness'. From there the attempt, in keeping with PBM, was to develop a set of tentative proposals for confronting the problem. This approach is shown in diagrammatic form in Figure 4.1.

Exploring and describing this impasse involves aspects of schooling that are beyond the sole agency of teachers and that are driven by forces that lie outside schools. These include the structure and content of curriculum, remembering that environmental education is deemed non-compulsory, but remembering also that there are Achievement Aims within the curriculum that require that environmental issues be confronted. The school review process is also imposed on schools by external forces. Parents and communities have expectations of schooling too, and teachers are inextricably caught in this complex concert of forces. Thus it seems that an attempt to adequately describe this 'problem' must draw on the insights provided by the sociology of education and curriculum theory. The composite methodology set out in Fig. 4.1 draws on these theories as well as the perspectives of teachers in order to develop a fuller understanding of, and thus to improve the description of the problem.

The four criteria provided by Robinson (1993) provide a rubric for understanding problems. In the first instance the articulation of the problem needs to be 'descriptively accurate'. Any solutions proposed need to be 'effective' in the short term, or at least begin to address the problem. They should also be 'coherent' within the school, education in general and with environmental education. The set of solutions must also be 'improvable' given that any solution proposed will be only the first in a long journey of change.

The solutions proposed here will not be empirically tested, this being beyond the scope of this thesis, and will thus remain tentative. Supporting evidence will be sought from the literature however. Tentative proposals will also be subjected to critique within the thesis and their development in the shape of a formal dissertation begins the process of critical dialogue amongst a wider community. Thus the composite methodology emerging here utilises a range of strategies in order to describe and then theorise the educational impasse as opposed to a school-based educational problem. It is because of this enlarged scope that the development of PBM beyond the scope described by Robinson (1993) is an important aspect of this thesis.

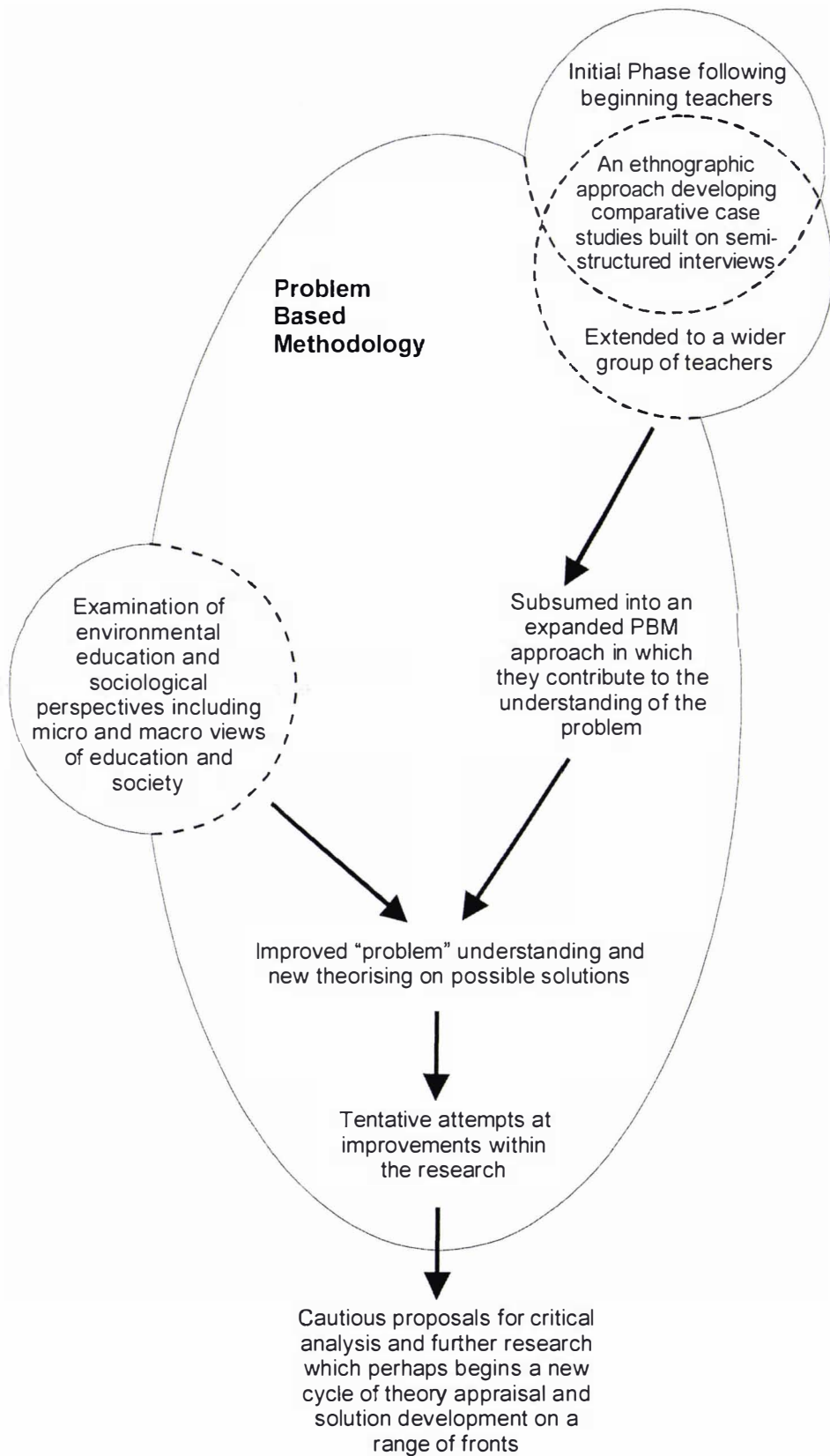


Figure 4.1 Conceptualising a composite methodology

4.3.4 Taking an Overview

Notwithstanding the way that methodology has been conceptualised in the previous section, the key issue is to adequately theorise both the 'problem' and possible solutions since, as will emerge as this thesis unfolds, this impasse appears to be a general one within the field of environmental education.

The PBM approach, at first glance, fits comfortably with this study since it seeks to go beyond teachers' experiences to the causes that shape that experience, and to cautiously attempt to improve the situation. Keeping in mind Robinson's (1993) contention that any solution must accommodate the theories of practitioners as the basis for discussing their work, case study research is seen here as an attempt to understand teachers' experiences and theories.

It is clear however, that teachers' lives are not a composite of self constructed discursive practices as some researchers propose. Whether or not they are cognisant of it, and in many cases they are not, teachers' professional lives are shaped by the organisational practices and policies adopted by a school's senior staff (see Marshall and Ball, 1999; Jeffery, 1999; and Troman, 1999). These are clearly influenced by the structure of the curriculum, the school review process and changes in the regulations governing schools. These are wider social forces.

Some teachers within the research, it will be seen, did not link the increased demand for paperwork with imminent school review or understand that the emphasis on Literacy, Numeracy and computer technology are driven by Ministry of Education policy. These are clearly aspects of education that are widely understood in general terms but do not always appear to be understood by teachers. That these aspects of teachers' work are driven by deeper causes is also beyond dispute. The political ideologies in ascension through the late 1980s and 1990s resulted in changes in New Zealand society in general, including education, that can be seen as influencing teachers' work (Codd, 1999; O'Neill, 1997). A good example of this is that the ability of parents to move their children to other schools is seen as influencing the lives of teachers within this research in a number of ways. It is one manifestation of an economic theory of competition which neo-liberal ideology seeks to strengthen in order to shape social thinking towards economic ends.

Our ability to know is uncertain however, so the research seeks to consider the wider and narrower social contexts in which and from which teachers' statements emerge. It then

seeks to cautiously attempt to understand something of these layers of social reality in order to understand teachers' lives and the way they act in response to the concert of forces that act upon them.

As has been mentioned, this is done from two directions. One is to capture and seek to understand the empirical reality of teachers' lives and through that to attempt to unpack something of the school's organisation and the range of responses to the causal mechanisms that are at work in education that these reveal. The other direction is a review of the scholarly literature and other sources that, through discussions of policy, practice and society, shed light on the nature of those underlying mechanisms. Both of these, I contend, must contribute to both an accurate description of the environmental education impasse and any tentative solution theories that might emerge to address it. This wider search for information and evidence forms part of the composite methodology described in Fig 4.1 above.

This approach raises some deeply seated theoretical issues however. Ethnographic research rejects the judgement of the cultures explored based on external criteria. In contrast, much sociology, particularly neo-Marxist theory, requires social analysis and critique in pursuing social justice. Underlying these differences in approach are different views of both the world and about what constitutes knowledge. These issues need to be reconciled in proposing this composite methodology.

Problem-based methodology does suggest a route by which solutions can be developed, through critical dialogue. This attempts to resolve the inconsistencies between theories without falling into the abyss of relativism. The criterion of 'effectiveness' provides a point of traction for bringing about change. For schools, effectiveness must be related at some point to enactment of the curriculum. The statements on environmental education already mentioned provide another set of criteria for reviewing effectiveness and these two external frames of reference can be brought to bear on practice through PBM. Caution is needed here though, because while enactment of the curriculum is part of the statutory function of schools, environmental education intentions are a body of wider social theorising that has occurred outside formal education.

PBM however, has some limitations that make it resistant to the application of macro-theoretical positions such as those contained in the Tbilisi Declaration (UNESCO-UNEP, 1978). It is claimed however (Robinson, 1993), that PBM bridges the three major research paradigms that dominate educational research, but rejects aspects of all of them. In

acknowledgement of the scope of the 'problem' impasse discussed here, the deeper claims and limitations of PBM mentioned, and the complexity of the composite methodology proposed, PBM warrants a deeper description and analysis and this is the subject of the next section.

4.4 PBM IN DETAIL, A CRITICAL ANALYSIS

4.4.1 Introduction

At the outset (Chapter Two), I expressed a hesitancy to subscribe to the position that research paradigms present boundaries that cannot be crossed. In Chapter Two the approach taken was described as 'loosely theorised'. In the previous section a description of PBM was provided and an attempt begun to position this research within it. It is now appropriate to consider in detail the way in which PBM claims to span the methodological field, and to consider how this project might fit within this span.

4.4.2 Research Paradigms – Research Traditions

In rejecting the notion of incommensurate research paradigms, Robinson (1993) side-steps the debates that have often been referred to as "paradigm wars" (see for example Oakley, 2000). Drawing on the work of Walker and Evers (1988 in Robinson, 1993), Robinson argues that if research paradigms are indeed incommensurate, then statements made within any particular paradigm are self-referential. They will be compelling to those who subscribe to the values and assumptions of that paradigm, and rejected by the adherents to other paradigms. If however there are statements such as 'research activity is partitioned into paradigms' which are accepted as valid across paradigms, these statements undermine the incommensurability argument. This is an argument of the same timbre as the view of postmodernism that there are 'no meta-narratives' which is itself a meta-narrative and thus self-contradictory. Robottom and Hart (1993) acknowledge the 'unity' argument and reject it. Paths of enquiry, they argue, involve different epistemologies and relations of power within communities of enquiry and cannot be reduced to a discussion about methods. Drawing in particular on Eisner (1988), Shwandt (1989), and Skrtic (1990), they conclude that paradigms cannot be accommodated "at any level from methods to metaphysical" (Robottom & Hart, 1993, p. 16). They then assert that progress can be made

not by reconciling paradigms, but by valuing different perspectives and moving beyond them, using dialogic discourse, to reconcile the purposes of research with the ideals of democracy and social justice.

Robinson (1993) argues however, that positivist, interpretive and critical theory based approaches are not paradigms but traditions that are not incommensurate with each other. She then positions PBM as spanning these traditions, containing aspects in common with all three, but also containing characteristics possessed by none of them. She claims that these characteristics overcome the weaknesses inherent in the three accepted traditions related to their inability to facilitate change in educational practice.

4.4.3 PBM and the Positivist Tradition

In comparing PBM to empiricist approaches to educational research, Robinson firstly rejects positivist empiricism, describing this as a discredited epistemology. All knowledge is shaped through culture and existing theory. Sense experiences do not provide an unmediated set of observations of the world. Thus, there is “no sharp distinction between interpreted and uninterrupted experience” (Robinson, 1993, p. 191). Robinson then compares PBM with non-positivist empiricism, a position I equate to Swann’s (1999) modern empiricism that is derived from Popper.

Building on the work of Scriven (1972) and Kaplan (1964), Robinson argues that normative claims can, given the intrusion of theory into all experience, be evaluated using the same strategies used in evaluating any other knowledge claim, since all are to a degree normative. PBM thus fits comfortably with a post-positivist empiricist view in that it requires in the first instance, explanatory accuracy. This involves empirical accuracy as Robinson points out, and includes an understanding of practitioners’ theories regarding their values about what constitutes good practice. PBM’s criterion of ‘improvability’ allows for the evaluation of such values and can be accommodated within a post-positivist empiricist approach, she argues. Empiricist approaches place strictures on PBM in insisting on verification, about which Robinson is less positive. This is not because PBM is averse to substantiating or testing theories but rather that the approaches associated with empiricist research (and here she seems to be talking about quantitative methods) often have profound implications for the social relations of that research.

The tendency to use quantitative approaches that control variables and apply complex techniques often involve researcher expertise that is not available to practitioners. Further,

the construction of such models tends to privilege researchers' theories and undervalue or obscure practitioners' theories. Not only does this diminish explanatory or theoretical accuracy but also seriously interrupts the development of a critical dialogue between researchers and practitioners. The inequality of relations that is likely to arise in empiricist research, the point emphasised by Robottom and Hart (1993), and Posch (2003), is an ongoing issue in educational research. Robinson (1993) argues that empirical approaches threaten to devalue or exclude practitioners' theories and thus jeopardise the contribution of the research to improving practice.

In summary then, PBM has an epistemological approach that is consistent with post-positivist empiricism and emphasises explanatory accuracy based on empirical evidence. An empirical (quantitative) approach however has implications for the social relations of research that are not conducive to the application of its findings to improving practice. In this regard, PBM has qualities and requirements that do not fit with the empiricist tradition but that are found in other approaches to research.

4.4.4 PBM and the Interpretive Tradition

In proceeding to review the way in which PBM overlaps with interpretive approaches Robinson makes two preparatory points. On one hand she anticipates her argument by concluding that the interpretive tradition is well matched with PBM. This is because it involves searching for descriptions of actors' understandings of their situations, of how they construct these through shared rules and linguistic practices, and of how researchers and practitioners might develop and reflect on their shared understandings. On the other hand she considers that interpretive inquiry has weaknesses because of its limited ability to critique the understandings of actors and thus its limited ability to apply the criterion of theoretical accuracy to its findings. Its capacity to move beyond explanation to critique and problem solving is therefore constrained.

In pursuing these arguments, Robinson notes an evolutionary trend in the interpretive field. This centres on an evolving view of the concept of *Verstehen*. She sees the shift from descriptions of actors' understandings of their circumstances, linked to this concept in the 1960s, to a later development in the concept that shifts the emphasis to shared social practice and inter-subjective meanings. She identifies the first approach with the espoused theories of practitioners seen in PBM but notes that because the approach takes such

reports at face value, it is subject to the faults of incomplete reporting, conscious or unconscious, and *post hoc* rationalisation.

Robinson considers the latter form relates closely to the notion of practitioner theories-in-use. Her central contention is that both of these understandings are required for accurate problem description and that espoused theories must be reconciled with theories-in-use through critical dialogue in pursuit of problem resolution.

Interpretive explanations cause concern in that they are shaped by the views and theories of the interpreters who thus "must become hermeneutically aware" of their own pre-understandings (Phillips, 1991, p. 556). Thus, there arises the need to judge between alternative interpretations and two criteria are suggested for this; the coherence of the explanations, and the degree to which they make sense. These ideas are not independent and are also determined by the predispositions of those involved. The result is the hermeneutic circle. Seeing an action or account as sensible, suggests Taylor (1977) depends on ones reading of the context and that depends on the sense one makes of it. The actor within the context will see such an explanation as valid while an outsider may not and therefore is likely to reject the account.

Robinson is cautious in addressing this potential obstacle. She considers that this circularity can be useful in assisting to shift the understanding of problems towards a higher degree of structure. She also makes the point that where there is difference between the views of individuals, this difference is seldom complete. Groups or individuals often share common perspectives despite differences. These similarities may allow the description of different accounts of events to be treated as hypotheses to be explored and tested. Failing this, the criterion of improvability may be applied in order to select accounts by discounting interpretations that are "self-sealing and untestable" (Robinson, 1993, p. 214). Thus, while emphasising the importance of interpretive principles in understanding actions, meanings, and the processes through which these are discovered, she rejects the idea that the hermeneutic circle provides an obstacle which makes it impossible to resolve disagreements over the validity of differing accounts of the problem situation.

Where Robinson finds substantive fault with interpretive approaches, is in the inadequacy of their theories of change for the solution of most educational problems. The theory of change present within them relies on the development of self and mutual understanding. It relies largely on consciousness raising and description of the situation to lead to change.

There is an absence of any normative standard with which to judge the practices under investigation. In short, interpretive approaches suffer from values relativism. Further, by emphasising the agency of individual actors in their own contexts, such approaches, as Fay (1975) explains, avoid examination of the social conditions which underpin the context and therefore an examination of the relationship between structural elements and the behaviours and forms those structural forces give rise to. This is an extremely important point in relation to the focus of this thesis. Robinson's discussion belies an ontological clash between the structural position Fay implies and the individual agency and relativism of post-modern ontologies. Robinson does not mention this underlying conflict or articulate an ontological position. This ontological clash is a core component of the 'paradigm wars' that she stepped around. Robottom and Hart (1993) consider that it is the underlying clash of worldviews that makes competing paradigms incommensurate. This avoidance of the deeply rooted issue of differing understandings of the nature of the world is a serious potential flaw in PBM that will be addressed later in this thesis.

In response to Fay's (1975) criticism however, Robinson concedes that PBM must incorporate a review of the prevailing social conditions that sustain problematic practices and beliefs when these are unlikely to change independently of those conditions. I would reiterate the point made earlier in this regard that the examples used in her book seldom involve this kind of analysis. This may be an idiosyncrasy of Robinson's approach rather than a failing of PBM and in the choice of simple rather than complex cases to illustrate her points. However, this matter needs to be addressed.

Robinson points out further, that in many cases the resolution of problems involves normative judgements which interpretive researchers are loathe to make. Such judgements often involve choices between internally coherent but conflicting positions. PBM focuses on an accurate account of educational problems that interpretive techniques contribute to in a significant way, although they are limited in their capacity to consider wider social and structural elements in their descriptions. These unobtrusive and non-judgemental strategies have little to offer the evaluation of effective solutions. This often requires the assessment of normative positions of greater or lesser worth, and the associated judgement of possible future consequences of potential solutions.

In asserting that solutions can be found and evaluated in this way, PBM is, like Popper's approach, ontologically bold (Corson, 1999) and contains approaches that allow for normative judgements. This contributes to its ability to be effective in educational problem solving. The absence of this capacity in interpretive approaches, in contrast,

limits its problem-solving capacity. Thus PBM has aspects in common with the interpretive tradition but also contains key differences.

4.4.5 PBM and the Critical Tradition

Dealing with Robinson's comparison of PBM with the critical research tradition is more problematic than the previous comparisons for a number of reasons. Firstly, as Robinson claims, there is a close similarity between the two but she considers this superficial. She responds to this in detail. Secondly, the comparison is detailed and complex, and thirdly, Robinson obviously privileges PBM in comparing it to the critical tradition. As a result, a number of the arguments she puts forward require close scrutiny.

In detailing this comparison I will summarise Robinson's argument and then consider alternative ways her discussion could be viewed. An analysis of how the work of this thesis sits in relation to both the critical tradition and to PBM, is undertaken in the final part of this section.

Robinson concedes that despite its relatively recent emergence, critical theory warrants recognition as a research tradition. She notes that critical theory is a general descriptor for a loose grouping of social theories and limits her discussion to methodological issues within this critical tradition. Central to the critical tradition is rejection of the values neutrality claimed by other approaches. The issue is, *which* values are being promoted and whose interests these serve (perhaps unwittingly). Critical research is thus informed by social theories that contain normative standards of judgement and are devoted to emancipation of social classes and other groups from oppression, and of all people from ideas and forces which inhibit rationality (Braybrook, 1987). Critical approaches seek the subjective understanding of those involved in problems as well as causal accounts of the conditions that shape the contexts in which people conduct their lives. As mentioned, critical approaches contain explicit values and are clearly sympathetic to the intentions contained in environmental education goals. The critical tradition holds that social conditions are at least partly shaped by underlying structural causes.

Critical approaches have much in common with PBM. Both subscribe to an accurate account of problems and a commitment to address them in order to improve the situation. Accounts in both, emphasise the subjective understandings of those involved.

Following that problem description, critical analysis and the proposition of responses to the problem is required by both approaches. Despite these obvious similarities there are however substantial differences. Critical approaches analyse the problem situation through the lens of one of a number of large-scale social theories. Robinson distinguishes between neo-Marxist theories that see oppression arising in the material forms and conditions of modern capitalism, and Habermasian approaches (Habermas, 1990) that consider that the imposition of narrow forms of instrumental rationality have stifled the development of a more consensually defined society. PBM, Robinson claims, shares with Habermas' view, a concern for the quality of communication between those involved in the problem situation. There are important differences however. Habermas' project is concerned with the wider society but PBM deliberately rejects grand theories and limits its scope to the espoused and in-use theories of those involved in micro problem situations.

Robinson's chief criticism is that critical approaches have not proved useful in solving real educational problems. Since this is a criticism that has emerged in the environmental literature building on Robinson's (1993) work, in particular by Scott and Oulton, (1999), Oulton and Scott (2000), and Walker (1995, 1997), Robinson's analysis is particularly pertinent. She makes a number of supporting arguments in developing this claim. Neo-Marxist approaches, she argues, have an over emphasis on structural determinism and become trapped in a cycle which is disempowering. The structures that shape society, it is argued, cannot be changed without wider social and economic change. To do this requires changes to these same structures that support the existing social relations, thus change seems impossible.

In contrast to her views on neo-Marxism, Robinson considers that Habermasian approaches over-estimate the capacity of individual agency to bring about transformation. This is an error that it is conceded may be common with PBM but it is considered by Robinson to be more correctable than the error of placing excessive emphasis on structural forces.

It is Robinson's general argument that critical approaches struggle to bridge the gap between their grand macro-theories, and the realities of the daily lives of educational practitioners. Very few critical researchers, Robinson claims, have ever seriously gone beyond the description phases of their methodology to the educative and social action that should follow. She cites Paulo Freire and Ira Shor as the exceptions.

A further flaw within critical approaches that is overcome in PBM, according to Robinson's argument, is that critical researchers, while seeking a widely informed description and understanding of the problem, restrict their efforts at resolution to the powerless who must take social and political action in order to change their material conditions and achieve emancipation. The critical position rejects the involvement of power groups in this process, suggesting that it is difficult if not impossible to work for both the oppressor and the oppressed. Robinson's approach to PBM considers that the powerful are involved in the problem too and no solution can ignore them. She argues that the presence of conflicting interests does not dismiss the possibility of collaboration for the betterment of all.

Critical theorists such as Giroux (1988) see this as a liberal approach that ignores or trivialises issues of conflict and power. Robinson (1993) claims that large-scale social theories are too unrealistic in their application to complex and diverse problems and are thus highly risky. Such theories are incomplete if they cannot explain how structures in society are mediated through individual actions in the problem situation. Robinson does concede however that her work is guided by the communicative theories of Argyris that have not been extensively compared with Habermas's views. She proposes that these two approaches may have the capacity to mutually enrich each other. It is perhaps in this statement that we have a starting point for looking at Robinson's argument from an alternative angle and thus to begin to question some of the privilege she affords PBM.

4.4.6 Reviewing the Arguments for PBM

The work of Argyris on which Robinson builds, takes a psychological approach to problem solving and is concerned with the improvement of the quality of interaction between people through critical dialogue. This is an important issue within all research addressing change. People do not simply put aside power, commitment to ideas, ambition and other strategic aspects of their communication in the interests of the common good however. As her case studies indicate, the process of critical dialogue that is central to collective problem solving is far from perfect, as with the development of Habermas's application of communicative action. Both may well contribute to educational change and this is an area for future exploration that reaches beyond the scope of this thesis. What is compelling about Habermas' theory however, is that he appeals to three validity claims; claims to truth, claims to rightness, and to truthfulness "...in the objective world... in the shared social world... or to something in his own subjective world..." (Habermas, 1990, p. 58).

These are significant insights that will be linked closely with the theoretical development central to this thesis in a later chapter.

In rejecting wider social theories however, Robinson (1993) rejects the notion that PBM is atheoretical, claiming instead that it builds on the theories of practitioners and the contribution they make towards the problem and its possible solution. In a different light however, rather than being atheoretical, this might be viewed as theoretically promiscuous. A mercenary methodology, suitable for a researcher-for-hire in a market orientated neo-liberal economy. In claiming to work with practitioners for change, PBM, at least as Robinson represents it, works for 'good' without declaring what good is. This exposes PBM to the charge by critical theory that in claiming to be neutral in terms of macro-values while advocating normative theories at the micro level, PBM simply obscures macro-values and ideologies at work within the problem setting.

This is illustrated in one of the case studies cited by Robinson. This involves efforts to develop institutional democracy in schools. There is no indication however of any analysis of the role of schools in society or whether any democratic cultural development will extend to learners and pedagogical practice. By operating in this way PBM might, for example, be serving the purpose of increasing the efficiency and internal cohesion with which the school is able to act as an agent of oppression against learners. In suggesting that conflict of interest between groups need not mean an inability to collaborate, Robinson is safe while she operates at the micro level of individuals or meso level of school organisation. Within this micro arena there are widely shared purposes and motives espoused. Any such claim of a general nature reaching beyond a single school, risks the charge of naïvety however. A look at the history of the trade union movement for example, does not need to be pursued in much depth to see that improvements to workers' conditions have involved considerable conflict. That moral arguments have generally had limited impact on those who benefit from oppression is also particularly clear from history. Robinson's naïve approach is perhaps just as subject to error as the macro social theories she criticises and a number of considerations support this contention.

Firstly, in working with the powerful, mostly school principals in the micro-context of PBM, there is a danger that the researcher subscribes to the principal's initial construction of the problem. The school principal's problems are likely to arise from the issues of mandated change by educational authorities being imposed on the existing culture of the school. Lacking a macro analysis or theory and choosing only to review internal micro issues within the school, PBM appears defenceless against wider social forces. This is

because it rejects adoption of macro-social theories that might provide such a defence, as unhelpful for bringing about improved practice. Thus, while Robinson charges that critical theory cannot bridge the gap between its macro social theory and micro level problems, PBM is in contrast, unable to defend itself from real rather than theoretical macro level intrusion into its micro 'utopia'. Having identified that the micro-macro divide is difficult to bridge, Robinson reaches the false conclusion that no bridge is required. This has a similarity to the conclusions of post-modernism that since reality is difficult to apprehend we will deny its existence.

These are harsh criticisms but as Robinson would herself agree, problems cannot be addressed without adequate and accurate description. I have considerable sympathy with the positions inherent in critical theory. I also admire many of the practical strategies embedded in PBM. The failure to construct a bridge between the macro and micro levels of social organisation that Robinson highlights at a methodological level, are characterised within environmental education by the "rhetoric-reality gap". However, the criticisms of critical theory within the environmental education literature that have already been mentioned (Walker, 1995, 1997; Oulton & Scott, 2000), build on Robinson's rejection of macro theories. The goals of environmental education are seen in this thesis to constitute a macro social theory that, it is argued, should be part of school-based education but that has not taken root.

Thus, there is a clear gap in the methodological theorising of PBM as it has been reviewed here. It is the inability to bring large-scale social theories into focus in the solution of real, practical, educational difficulties and problems such as those presented by the environmental education impasse described in this thesis. This gap invites an attempt to develop an expanded methodology capable of grappling with this complex and longstanding issue.

4.5 A MODIFIED PBM

In response to these issues I wish to propose a modified Problem-Based Methodology. This builds on PBM in three significant ways. Firstly, rather than working with the powerless, the powerful, or pretending to involve all those involved in a problem, this approach recruits practitioners who subscribe to a set of values (in this case encapsulated in the

defining statements of environmental education). These people are committed to acting on behalf of the oppressed for social and environmental justice on moral and ethical grounds.

Secondly, it proposes the addition of an extra level of triple-loop learning to Argyris' single and double loops advocated by Robinson. Where single-loop learning monitors the effectiveness of educational practice within the constraint structure, double-loop-learning involves reconsideration of the key assumptions, values and goals that form the constraint structure. These operate largely within the micro context of the school but may start to impinge on structural forces imported into the school via the curriculum or school review process. These are referred to as meso level issues in this thesis. The proposed triple-loop learning requires that the actors consider the values, assumptions and forces acting on them from the macro context, to analyse both the ideologies and the groups these might serve, and to consider the role of the school within society in acting to uphold or change these conditions. This is a critical perspective.

The third suggestion follows from the second. Addressing the problem may now involve a concert of actions that reach beyond the school and involve a wider audience. This could include wider social, professional or political action aimed at changing the social conditions in which the school sits, in order to allow the educative changes required to address the problem.

Rather than falling into the two traps of being disempowered by an over emphasis on structure or alternatively to over-estimate individual agency, this approach seeks to bed practical incremental change coherently within a wider social theory. Rather than acting at the structural or individual levels in isolation, this approach has the capacity to explore opportunities at a range of levels and begin a general change process. Thus, for example, schools adopting a democratic pedagogy and fostering an environmental ethic, contribute to a pool of citizens who might support electoral options tentatively put forward by politicians who are being subjected to concerted pressure. Such support might lead to the mandating of environmental and social justice issues within the curriculum, thus strengthening demands for improved environmental practice that in turn shift such positions from the periphery towards the centre and to more mainstream acceptance. Thus, this modified, or Critical Problem Based Methodology (CPBM) provides potential for bridging the gaps between macro theories and micro actions identified in this section. The introduction of triple loop learning develops a methodological robustness that will be expanded on in a later chapter.

Happily this is coherent with Habermas' (1990) reference to claims of truth, rightness and truthfulness that apply to the third, second and first loops of reflection respectively. CPBM does not dismiss any of the theories of PBM, especially critical dialogue, but enhances them by embedding them coherently in wider social theories although some caution about the criterion of coherence has been expressed. This is not to imply that the reality of confronting the educational impasse described here has become any easier; perhaps the contrary is true. What it does do however, is provide the theoretical and methodological apparatus for moving forward at the practical level but does so in a way that is conscious of wider social issues and therefore provides the capacity to contribute to resolving the impasse. It removes the pretence that problems in schools can be solved without reference to wider society, a point emphasised in critical theory. At the same time it provides a problem solving methodology that seems largely absent from the vocabulary of critical theory. The way that this Critical Problem-Based Methodology might now be applied to this research is the subject of a later chapter. First, it is necessary to provide a detailed description of the research process and relate it to the methodological approach developed here.

CHAPTER FIVE: The Research Process

5.1 INTRODUCTION

Previous chapters have devoted considerable attention to the multiple contexts in which this research was embedded. These include the history and debates within environmental education, the socio-political context within New Zealand at the time, and the methodological approach taken. It was pointed out in describing the methodological approach that this work did not begin as a doctoral study but evolved into one. In this light it is the purpose of this chapter to describe the research process itself and to elaborate its evolution in relation to the contexts that have been described.

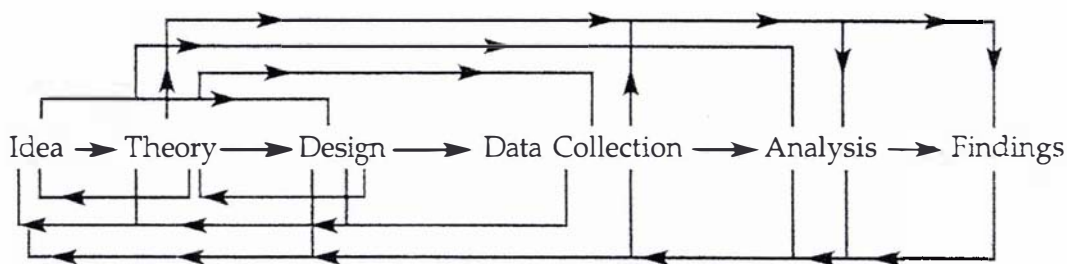
This is done in a number of steps that are contained in the sections of this chapter. The first of these establishes a model for the research process, remembering that this has been conceptualized methodologically as the problem description phase within a Critical Problem-Based Methodology. The genesis of the study is then explained, followed by the chronology and detail of its first and most extensive phase. Following that, the broadening scope of the work as manifest in a number of new phases is explained. Finally the ethical considerations that informed the conduct of the research are described.

5.2 CONCEPTUALISING THE RESEARCH PROCESS

5.2.1 A Model for Research

In his book on qualitative research methods, Berg (2001) reviews an argument within the literature as to whether theorizing should lead research or research lead theory. In resolution of this debate he proposes a non-linear approach to research that is helpful in conceptualising the work in this thesis. Berg suggests that research often occurs in a “spiraling” approach that is represented in the diagram below.

In this diagram all the research elements interact on each other directly and indirectly. Remembering that most research ideas are shaped by existing experience and the analysis and theorizing that arises from it, the diagram captures the way a new idea stimulates new theorizing that influences considerations of how the research might be designed and conducted.



(Berg, 2001, p. 19)

Figure 5.1 A research model

These research elements are reconsidered and modified, perhaps several times both together or separately as the research develops. Subsequently initial data gathering, and the informal analysis that accompanies it, shapes the way that future data gathering is considered and may catalyze further reflection and modification of the research idea, its accompanying theories and the research design. The whole process thus might be seen as one in which the research elements are mutually interactive, reflexive and evolving in the spiraling fashion suggested by Berg, towards the final form. Central in this process is the researcher. The research described here arose in this fashion, however, rather than describing it in a 'final form', the whole process is recorded here. This is because the reflection that occurred was a response to the experiences of the teachers involved in the research over some years. The evolving insights gained by the researcher in this reflexive process continued to shape the project, the scope of which, reaches beyond the limits of this thesis. The process cannot be understood without reference to the events and thinking that shaped it and these are regarded as part of the data.

5.2.2 The role of the researcher

The notion of reflexivity has arisen in describing the spiraling research process invoked above. Flick (2002) describes this concept of the involvement of the researcher as an element of the research process. She considers that the communications between the researcher and others involved in the study jointly contribute to knowledge production. Further, the researcher's subjectivities and reflections are part of the research process. As well, she identifies all the associated impressions, feelings and irritations that accompany the research process as part of the data. These shape the interpretation of events. The clarification of the researcher's position in the debates outlined in Chapter Two is part of the process of identifying the subjectivities carried

into the research. That process is continued, in the sense that Flick suggests above, in the more detailed description of the interactions of the researcher with the teachers and with the data they provide in the next two chapters.

This concept of reflexivity fits within Berg's research model. It also acknowledges that researchers, and their values and theories, are a crucial part of the research process and thus require description and analysis. Without this, a description of the research could be seen as incomplete. Swann (1999) argues that this reflexive involvement of the researcher in the research process does not invalidate the need to test propositions about individual and social behavior. I suggest, extending on this, that testing requires an improved description of the role of the researcher in the process. Accurate description of the researcher's role allows a clearer identification of the presuppositions taken into the process. This should, in turn, allow improved analysis of the data that arises in response to them. Thus, identifying these presuppositions should improve the research.

The research here, especially in its initial phases, involved a number of case studies. Interestingly, in describing his own case study work, Troman (1999) uses the same vocabulary as Berg (2001). Troman (1999, p. 18) describes a "progressive focusing" and "spiraling insights". These descriptors fit well with the ideas of an evolving and spiraling research process discussed above. Using Berg's (2001) model and the notion of reflexivity discussed above, the next sections of this chapter set out to describe the initial actions and theorizing from which the research idea originally emerged, and subsequently proceed to a description of the phases through which it developed.

5.3 THE RESEARCH GENESIS

5.3.1 The purpose

This study began as an attempt to gauge the 'usefulness' of a pre-service teacher education course in environmental education, that is, whether beginning teachers found the ideas and activities within the course useful to them in teaching environmental education in schools once they graduated. As the study progressed, it became increasingly clear that most of the teachers involved did not teach *for* the environment in schools as they had expressed the intention of doing during their pre-service training. Further, the reasons for this appeared both complex and difficult to disentangle. Some of these factors, beyond the usefulness of the course itself (if that could be determined), include the level of commitment of the teachers, the culture of

their schools, the nature of the curriculum, and perhaps, the particular challenges facing beginning teachers. As a result of the growing awareness by the researcher of both this complexity and the lack of activity relating to the environment over the two years of the initial study, a more urgent response to the initial question: "How do you empower teachers to educate *for* the environment in New Zealand classrooms?" crystallized. To describe this evolution clearly it is important to start with an understanding of what the initial environmental education course was about and the theorizing that shaped it, for these lie at the root of the project.

5.3.2 The initial course

The environmental education course that was the starting point of the process was taught in 1998. It was from the participants in this course that the teachers involved in the first phase of the research were drawn. The course was structured around three assignments. The first of these focused on the Tbilisi Declaration (UNESCO-UNEP 1978) as the source of legitimate foundational goals for environmental education, with some supplementary reading and class activities. In response, course participants had to write a summary of the goals of environmental education and examine the classroom implications of those goals. It was intended that the response to this task would focus on the cross-curricular nature of environmental education and the need for broad educational approaches dealing with real issues as spelt out by the Tbilisi Declaration and summarized in Chapter Two. The usefulness of the notions of education *about*, *in* and *for* the environment (Gough 1997; Fien, 1988) as a tool for analysing the content of environmental education activities was also stressed.

The second task involved completing a major essay for which core readings focusing on the environmental philosophies described by O'Riordan (1989), and the contested nature of curriculum. Engagement with curriculum theory, including curriculum conceptions and the explicit, implicit and null curricula (Eisner 1979) was also required. This work emphasized the values positions hidden in a variety of curriculum conceptions and in the nature of the material taught and not taught in schools. Further readings on the role of schools as agents of social reproduction and the role of cultural capital and hegemony in this process were included. This second essay also required course members to reflect on their own philosophical position as environmental educators, to reflect similarly on the position implicit in the Tbilisi Declaration and to analyse the curriculum conceptions that seemed compatible with them. They were asked to compare these with the conceptions manifest in New Zealand schooling and the New Zealand Curriculum and to make suggestions for

action on behalf of the environment within those contexts. Considerable support was given in developing these ideas in class time and from supplementary reading.

The theme of course work was that, in O’Riordan’s (1989) terms, the Tbilisi Declaration can be read as an ‘ecocentric’ document as explained in Chapter Two. The New Zealand Curriculum, however, is largely ‘technocentric’ (O’Riordan 1989), emphasising an academic rationalist curriculum approach (Eisner, 1979) and underpinning that with a socially reconstructive attempt to improve economic competitiveness. The implicit messages within the curriculum emphasise competition and economic imperatives. Environment, as the review of recent curriculum history in Chapter Three demonstrates (Department of Education 1988, Ministry of Education 1991, 1993a), has maintained a low profile.

The point was made throughout this section of the course and emphasised by a review of the current curriculum conducted as part of in-class work, that opportunities exist in the curriculum to teach environmental education goals and to exploit the eclectic nature of the curriculum in order to focus on more learner-centered approaches and to integrate across the curriculum. A summary of these opportunities was provided which was later published (Chapman, 1999).

The third assessment task involved group planning and production of a cross-curricular unit of work. This was to realise the goals of the field by being learner-centered, issue-focused, and having an action component.

The course was structured in this way for a range of reasons. The first and last sections established the basis for and intentions of environmental education and provided an opportunity to plan their enactment for the classroom. The middle section provided some theoretical background for doing so. An alternative approach that involved educating participants about environmental problems and convincing them of the need for environmental programmes was rejected as inappropriate on a number of grounds. Firstly, the participants had opted into the course and therefore presumably, were already aware of environmental concerns. Further, there is a sense from the environmental education literature that gloom and doom messages depress and disempower people, overwhelming them with the scale of global problems.

The development of the course was also informed by the linking of notions of social and environmental justice; that people caught between survival and death will make unsustainable decisions, and that poverty and conflict are therefore environmental problems. These links are made in the first sentence of *The Belgrade Charter* (UNESCO-UNEP, 1976). This concern for issues of human suffering and environmental

degradation were sharpened by a visibly deteriorating situation in both social and environmental terms in New Zealand throughout the 1990s as discussed in Chapter Three. A personal analysis of this situation expressed itself in terms of the following understandings. Firstly, that the curriculum changes over the period had marginalized the environment in the curriculum. Secondly, that references to environment and social justice within the curriculum were largely rhetorical because the structural changes in education, in particular the local control of schools by Boards of Trustees, ensured educational inequity by turning school governance over to community boards. Thirdly, that these events were textbook examples of the processes of social reproduction and reconstruction towards unjust ends described by authors such as Apple (1990).

In this context, the comprehensive and demanding second assignment which asked students to clarify the values perspectives implicit in their own beliefs and in the schooling system they were about to enter as teachers seemed both logical and at the same time something of a risk. The decision to take this risk was triggered by a small statement of great clarity in work by John Huckle (1983). He challenged traditional values clarification and issues debate, considering that real social and political decisions are not made on the basis of rational debate and moral principle. Instead, they are informed by power and pragmatism. To fail to educate learners to these political realities is to set them up for disillusionment, Huckle argued.

The risk involved the potential for disillusioning students. Thus, in response to this social and educational context, I sought to challenge teachers to clarify their own positions, to understand the legitimacy of environmental education goals and to understand that teaching for the environment challenges some of the goals implicit in the processes of schooling. As part of this process, and in response to the risk mentioned, it was hoped they would develop a defensible position built around the understanding that all education is values education. This involved developing the ability to identify where environmental education values and goals to be incorporated into their classroom programmes could be found in the New Zealand curriculum.

Thus, empowerment was sought in understanding what they were setting out to do in curriculum and sociological terms. Development of this course structure involved the rejection of an alternative course provided to teacher educators by the UNESCO Pacific Rim Environmental Education Project (Fien, 1993c). This consisted of nine modules for teacher education. The material provided as part of this UNESCO course, though well structured, presented and researched, had a strong 'Overhead Transparency' approach, setting out lists of concepts, data and flow diagrams of inter-relationships. While some of the material was very good, taken overall it was felt to be lacking in

certain angst, urgency, and a robust theoretical framework from which teachers might act independently in the years ahead. The modules seemed to contain too much to be learned, a prepared and organized set of activities that removed from learners the need to grapple with some essential dilemmas, to critically confront the behaviors of their own society and themselves in it, and emerge with concrete defensible classroom strategies to begin to make a difference. In response to these concerns, the higher risk strategy that is the course described here occurred.

The project that arose from this course formed the first phase of the research described in this chapter. It was initially not so much a course evaluation project or conscious research, as a logical effort to test some of the assumptions that had been made and to check the intentions for the course against the experiences and subsequent classroom realities of those involved in doing it. It was an attempt to tune and refine the course so that it usefully prepared students to begin environmental education in their future roles as classroom teachers.

5.4 DETAIL OF PHASE ONE

5.4.1 Recruiting participants

At the conclusion of the course in 1998 I discussed with the participants my concern that having set up the course described above, it was important to get some feedback on its usefulness. In this regard, I don't consider course evaluation conducted at the conclusion of a course, by itself, to be of particular use because none of the ideas involved have been weighed against the reality of daily practice. I expressed my interest in keeping in touch with any of the teachers who were prepared to help review the course with the benefit of their experience of teaching and to help gauge the usefulness of the ideas. I expressed the view that participation in this exercise was a collective effort and that together we would be learning about environmental education in order to improve practice. While I have described it as collective, I do not consider it to be collaborative in the action research sense, for the interviews and reflection on them were interpretive in nature. None-the-less, the sense of the essential role played by the participants was genuine and was emphasised in requesting their help. Eight of the group of twelve were subsequently contacted the following year and agreed to be part of the follow-up interviews described in the next section

5.4.2 The interviews

Three interviews were planned. It was intended to conduct the first in May 1999 to record teachers' first impressions in the job. The second was intended at the end of that year in order to capture their reflections on their first year in the classroom and their thinking about the year ahead. A final interview at the end of their second classroom year, at the end of 2000, was intended. Although the timing was not always as planned, these interviews were conducted fairly well to schedule.

Interview one– May to August 1999

This interview was intended to catch the teachers' impressions of their first few months in the classroom when both their initial impressions and their experiences in training were fresh. Some difficulties in tracing and getting to see folk spread over an area of five hundred kilometers diameter were encountered. Despite this however, all the participants were interviewed during the middle section of their first year in the classroom.

Interview two– Early 2000

It was intended that this interview would occur at the end of 1999. A time that would enable the interview to capture the teachers' reflections on their first year in the classroom and their thinking about, and intentions for the year ahead. The teachers were actually interviewed at the beginning of the following year however.

Interview three – December 2000 to February 2001

The final interview was then intended to capture teachers' thinking at the end of their second year in the classroom when they would expect to become fully registered teachers. It is at that stage of their careers that many young teachers set off to see the world and because of this, it was not anticipated that the work would continue beyond this point. Only five participants were interviewed at the end of 2000. One was interviewed in the first weeks of 2001. One teacher withdrew from the study and the eighth had moved schools at the end of 1999 and subsequently moved again during 2000. The atypical nature of this experience, coupled with long distance, discouraged completion of the final interview.

Interviews one and two were loosely structured, and involved asking some general starter questions and allowing participants to freely canvas their experiences. This was done in the hope that the widest possible range of insights would emerge. Points that seemed of significance to the teacher or to the interviewer, areas where teachers' struggled to conceptualise or express things as they reflected, or areas where

contradictions with previous statements were made or implied were explored with further questions.

The intention of this approach was to gather as full a picture as possible of the teachers' experiences and perceptions without attempting to anticipate what these would be. This was not only because I sought to avoid biasing the interviews with my own preconceptions, and allow the research to lead theorising, as discussed previously, but also because I genuinely did not know what their perceptions of teaching would be. This emphasizes the ethnographic aspect of the case study work in that the interviews sought to investigate the teachers' lives as they experienced them.

During the interviews, I was aware of my frailties as an interviewer in that I tended to try and interpret, and this highlighted my inexperience as a researcher. Further, some of these teachers had, by the end of 2000, been known to me for six years and most of the interviews were pleasant, hopefully mutually enjoyable, opportunities to catch up, to reflect, and to have a former lecturer come and show some interest in post-collegial life. Thus, the interviews were by no means a clinical data gathering exercise. I cannot judge the impact of this on the quality of the data, although I would like to think the result was positive. As patterns began to emerge in the responses to the questions however, follow up questions became more focused. By Interview Three the questions had a little more structure because it was clear little was happening in most situations. In several cases this was made clear when contact to arrange the interview occurred. "Oh, I haven't done much" was the common response and this set a tone for the interviews as will be seen.

Finally, knowing the teachers reasonably well, and knowing their range of confidence, expressiveness, analytical ability, and the situations they worked in, I tended to 'seed' the interviews. Thus, I started with someone who I felt would give me an insight into the generic growth that was likely to have occurred since the last interview, and thus have a base for conducting the remainder. There were still several surprises however.

Throughout the process, while acknowledging the special position of researcher, the work remained underpinned by the ethos that "*collectively we are trying to find out what happens to beginning teachers in order to develop ways to assist them in undertaking environmental education in schools*". Thus, participation in the research was seen as environmental action.

5.4.3 Interview questions

While the data collection was intended to focus on issues relating to environmental education, this topic was not broached directly with participants in early stages of the interviews for a number of reasons. A less structured and general approach to the interview gives subjects the opportunity to identify factors important to them and to delve into their own views in a deeper way. This can provide a context for understanding specific issues and examples if and when they arise. Further, environmental education is not part of the curriculum and thus a general approach allows issues to arise in the order in which the interviewee rather than the interviewer considers important.

As a result, early in the interview sequence environmental education was brought into the interview almost incidentally. However, as the interview regime developed, each interview became slightly more purposeful, being informed by the previous interview(s), and thus targeting issues relating to environmental education more directly and with more confidence about the context in which they sat. The questions for each interview were developed after the previous set had been completed and after reflection on what had and had not emerged from the data to date had been considered. Here the usefulness of Berg's (2001) model, cited previously, can be seen.

Interview one questions

The set of questions below was used as the framework for the first interview.

- What are your reactions to your first few months teaching?
- What were the things you expected and those you did not expect?
- Is there anything you can identify that has particularly shaped your development as a teacher?
- What about the environment? Where does that fit in to what you have done so far?

The first two questions in practice merged in response to the general nature of question one. The third question then probed teacher development issues and sought to canvass any ideals, special events or activities that could be identified as influencing the teachers' practice. This provided the possibility for issues that might be relevant generally or specifically to environmental education to emerge spontaneously. The final question targeted environmental education directly. Supplementary questions occurred in response to answers that arose.

Interview two questions

Informed by the responses to the first interview, the second set of questions remained general but began to seek information from the teachers in a more targeted way as the questions used indicate.

- What do you think of 1999 in hindsight? How do you review the year?
- What are your thoughts beginning this year regarding your teaching and professional development?
- College Preparation - How well did your training prepare you for the job of teaching as you have experienced so far?
- Curriculum Strengths – What do you regard as your strengths in the curriculum?
- School Emphasis – Where does your school place its curriculum emphasis?
- What about environmental education? Where does it figure in the school's programme, and in your teaching?
- Other comments – Are there other points you would like to make or things I've missed?

Informed by the experience of Interview One and in particular by the sense that the school culture might be far more significant than the development of teaching confidence on what happened in an individual classroom, Interview Two 'crept up' on environmental education in a different way. Questions one and two clearly asked for thoughts on first year teaching and of the year ahead. Question three was prompted by comments about their pre-service training made by some teachers in Interview One. All the teachers had done in-depth studies in teaching subjects and their feeling about their curriculum expertise was explored in question four, in conjunction with exploring where the school placed its curriculum emphasis in question five. This sought to ascertain to what degree teachers' expertise changed in response to school priorities, an issue that I felt would have implications for environmental education. (If for example, a teacher had extensive background in music but this was not utilized by the school and the teacher was directed into other areas, and the teacher was found to no longer consider music a strength, this would have profound implications for any educational areas not valued in schools). Finally, in question six the issue of environmental education was broached directly and any further comments that might be interesting or relevant canvassed subsequently, in a final general question.

Interview three questions

After Interview Two there were no examples of environmental education topics being taught that had been reported, thus the third and final interview explored the teachers' experience that might be relevant to this issue in more detail.

- How do you feel now, looking through your own eyes at yourself as you were when you finished College at the end of 1998? How do you see yourself?
- What do you think your achievements are looking back over the last two years?
- How would you summarize your science teaching over the last two years?
- What about environmental education (elaborate as necessary):
- What have been the things in your job that have taken most effort?
- What is the school's major area of focus – not necessarily curriculum?
- At College, you had a commitment to environmental education, how do you see that now?
- Have the Ministry's Guidelines had any impact on you?
- What is your own environmental philosophy?
- What do you think would need to happen for you to make the environment a more significant part of your teaching?
- Would it be easier to change/support you or the staff as a whole?
- What would you need to do to make a start?
- Who do you *choose* to work with, or for support?
- How do you remember your time at College now, two years on?

The first two questions sought to trigger some reflection on two years teaching by considering how the teachers felt they had changed since finishing College and what they had achieved. Question three explored their science teaching for two reasons. Firstly, science is perceived as a difficult subject to teach (in parallel with environmental education) but is in contrast to it, a high status element of the formal curriculum.

Based on experience in the previous interviews, the schools' major focus areas were explored. Other 'beyond curriculum' emphases such as parental participation or school image could have provided insights helpful to understanding the school context. In considering environmental philosophies I wondered if a clear philosophy might have informed environmental teaching or, alternatively, if teaching might have assisted the development of a clear philosophy. Anticipating that little environmental education work had occurred, question five set out to explore possible support that could be provided for teachers, whether it be individually or to a whole school staff. The next question asked, at the individual level, what do *you* need and who would you consider a helpful source of support? Follow up questions sought final reflection on teacher training and, as an afterthought, the teachers' impression of the culture of their schools.

Summarising Phase One

This first phase of the research is the most substantial in that it involved a number of case studies conducted over a period of two years. In the final round of interviews one teacher was found to have planned and conducted an environmental education topic with her class. This occurred in the smallest school. During the earlier interviews, some of the teachers, while enthusiastic about children and teaching, were quite unhappy about other events in their professional lives. A number of wider questions about school organisation and culture began to emerge that are reflected in Interview Three responded to this.

The thought began to emerge during this process that it was simply too much to expect beginning teachers to act as agents of change in New Zealand schools and this became depressing. As well as that, the ramifications of ongoing neo-liberal restructuring were continuing to impact on schools. On the other hand, the *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999a) had been released. This presented some new opportunities to explore the issues related to teacher empowerment in environmental education and triggered a widened scope for this research.

5.5 THE WIDER PROJECT

5.5.1 Phase two

Within the context described in the previous section the opportunity arose in mid 2000 to become involved in a Ministry of Education contract delivering environmental education workshops introducing the *Guidelines for Environmental Education in New Zealand Schools* (Ministry of Education, 1999a) to local teachers. The contract delivery involved the contractors in recruiting and training regional consortia who would run workshops with local teachers, two from each participating school. These teachers would then, within this model, be environmental education resource teachers within their schools. The workshop delivery involved two separate days, spaced at the discretion of the providers, but allowing time for teachers to trial ideas and report back in order to reflect and consolidate at the second workshop.

Despite severe misgivings about the structure of the contract I decided to become involved at the local level and joined with other educators in the district to establish a local consortium. A critical examination of the model is out of place here although I have expressed concerns about the theoretical adequacy of the national training

elsewhere (Chapman 2003). The decision to be involved was made on a number of grounds. This was the first significant national initiative in environmental education and to stand aside from it on philosophical grounds seemed not only churlish but close to offensive in a small country like New Zealand. This decision can be viewed in the light of the 'something versus nothing' debate outline in Chapter Two. A second reason involved establishing contacts with interested local teachers that might usefully endure beyond the contract. Thirdly, and most importantly, it provided an opportunity to work with some experienced teachers and to follow their subsequent progress as an extension to the research I was already pursuing. While it was clear that two six hour workshops in no way provided the depth of engagement with the field provided by the course discussed earlier, the workshops focused on the recently released *Guidelines for Environmental Education* (Ministry of Education, 1999a). This support document, together with the expected greater experience, confidence and institutional standing of teachers attending the workshop might, I thought, be a productive combination and involvement in this activity could shed light on the research question.

In Phase Two, teachers involved in the workshops were invited to participate in follow-up interviews about their progress in putting environmental education into practice subsequent to the workshops. This recruitment was undertaken in the same spirit as in the previous phase, that this was a collective effort to improve practice. It was intended to interview participants soon after their second workshop, in June or July 2001 and again six months later. In the event, teacher workload at the end of year period when the second interview fell was such that it was postponed and took place in July 2002, one year later. The workshops involved two teacher 'teams' from ten schools. Of the twenty teachers attending the workshops eleven agreed to participate. Nine teachers from six schools completed the two interviews.

This second phase of the research did not start optimistically. At the first workshop, each school team planned a topic of work that they undertook to teach in the interval between the two workshops. These occurred in early March and late May, a gap of ten weeks. It was made clear that the first activity at the second workshop would involve reporting back on this topic. During Workshop Two it transpired that only one school team had undertaken the unit they planned, and, although comprehensive, it did not involve a *for the environment* component. The other schools had only 'talked about' what they intended to do in the future.

5.5.2 Phase Three

Having conducted workshops using the environmental education *Guidelines* (Ministry of Education, 1999a) with teachers on behalf of the Ministry, it occurred to me that the 'Phase One' group had a much better background in the field than the workshop teachers and might respond positively to an introduction to the *Guidelines*. I decided to initiate a supportive intervention with the members of the Phase One group who were available and interested. Having completed two years teaching and become formally certificated, several members of this group had headed overseas or moved to new jobs further afield. Three remained 'within range' in the central North Island and these teachers were invited to a workshop in the school mid-year break, July 2001. The intention was to provide an introduction to the *Guidelines* and to jointly plan two topics of work that fitted with their long-term plans for terms three and four that year. As an incentive, transport expenses were covered and lunch provided. Their undertaking was to submit to a further follow-up interview to gauge how the topics had gone in practice.

To try and strengthen the base of this effort I recruited an extra teacher into phase three. The teacher, Ina, had the same teaching experience as the other three and had participated in the same course but followed a different path. She had been in the same college cohort as the others but on finishing her teaching diploma had taken up a one year, long term relieving position in a local school. At the completion of that year she had returned to university study to complete a Bachelor of Education degree in 1999 and completed the environmental education course during that year. She had then returned to teaching in 2000. At the beginning of 2001 she had moved to a small country school fifteen kilometers from the University. In recruiting her to the group, and as a kind of catch-up activity, I asked Ina if she had been able to include environmental education in her teaching to date. On receiving a negative response I asked her to reflect on the reasons for this prior to the workshop. She obliged by submitting a page in writing that will emerge later. She reported that as a beginning teacher she felt overwhelmed by the orthodoxy of the school and that the effort required to initiate new ideas was too great. As it turned out, Ina was in the smallest school of the four Phase Three teachers and was the only one who put the units planned in this workshop into action.

At this stage I knew the background contexts of all the teachers in Phase Three and while I hoped for success, was not confident that this initiative would be fruitful. The main reason was that the status of environmental education remained unchanged and there was no external motivation to begin. Thus, at this point of the research I was beginning to search, with some sense of desperation, for ideas or insights on how to

deal with what seemed to be a complete impasse in making any impact on school or classroom practice. As a result, Phase Four of the research, described in the next section, began as a series of attempts to search for ideas.

5.5.3 Broadening the search

Some seemingly random events

During the year 2000 some other opportunities to take initiatives arose which, though not initially related to this research, impacted quite significantly upon it. An initiative was taken at Massey University College of Education to establish new Post Graduate qualifications. In response, I developed a proposal for a Post Graduate Certificate and Diploma endorsed in Environmental Education. These proposals were accepted and as a result an Environmental Education post-graduate paper was first offered in 2001. In early 2001 the final interviews of Phase One were completed. By mid 2001 the teacher workshops had been run, the first follow-up interviews of Phase Two were completed, and the Phase Three 'intervention' had been undertaken.

In the meantime, as an extension to the Ministry contract training local teachers, two schools were chosen as pilot schools for more intensive support. One was a large city secondary school while the other was a small country school. The secondary school had two keen teachers who met regularly and worked tenaciously with a number of subject departments to get aspects of environmental education initiated in Science, Social Studies and Technology, with some success. These were the only two teachers who had taught the unit they planned at the first workshop in Phase Two. They also established a school-wide recycling project. It was clear throughout the period working with the school however, that all the teachers were under incredible pressure developing the new national qualification framework and that our work was of low priority. At the conclusion of our involvement, the initiatives taken had not really borne fruit. The two lead teachers continued their work after the contract finished however, and have made a significant impact.

The second school was a small country school with four teachers on the staff. The school had a new Principal since committing to the project. Despite this I was optimistic about the prospects of working in a small school. I was aware that our project may not be the new Principal's top priority. During the project, one of the lead teachers left to travel overseas and a second teacher gained a position in another school. Somewhere in this re-shuffle a new Deputy Principal was also appointed so that the school we began with was not the one we finished with. Some good work was done but the project did not develop the traction hoped for. The new Principal was

keen to continue and we began some curriculum development work. He was forced to concede however, that with virtually a new staff and a number of inherited problems to deal with, the curriculum development project was beyond the capacity of his staff to cope with. Thus, both these attempts to begin to trial curriculum development responses to the problems of uptake and empowerment came to little. These projects concluded in mid 2001.

Throughout this continuing litany of difficulties I began to wonder if there were examples of good practice to be found and what conditions might be supporting them. A further frustration here was that the lead contractors were continually communicating the great things taking place within the contract. I felt our consortium was one of the more 'expert' amongst those we met at the training session, and as an experienced teacher educator with some knowledge of curriculum design and a reasonable background in environmental education, I was painfully aware of our lack of success. I had the opportunity during this period to attend a Ministry of Education focus group on environmental education and see a presentation summarising the contract. I was somewhat taken aback at the quality of the initiatives on show (these have since been reported by Bolstad et al., 2004). Our efforts were by no means overshadowed, however, while I viewed these as reasonably humble, others involved seemed to think that their similar achievements were of outstanding quality. Further, consortia members often went into schools and assisted teachers but seemed to have no comprehension that the subsequent activities occurred because of their expertise and that these were most unlikely to persist when that expertise was removed. The level of understanding of environmental education also struck me as rather shallow, but given the depth of the 'training' described previously, this was probably not surprising. An encapsulation of the nature of the environmental education initiatives arising through the Ministry contract can also be seen in an article by Vowless (2002), and a response to it found in Chapman (2003).

In writing about these events in hindsight, I have sequenced and organized them although they were not coherent at the time. Instead, I felt tangled in a set of events of a seemingly random nature that were discordant and troubling. My instincts told me things were 'not right' but I had no framework to allow me to deal with these concerns. Further, nobody else involved in the field seemed to want to do so.

Against this backdrop, during the period of late 2001 through to early 2002 I began to identify a small number of teachers who were involved in quality activities in schools. By quality I mean activities and programmes that involved thinking about the way our society functions and looking at some of the values issues involved. Central to this was the postgraduate programme I had established. Some of the teachers mentioned

above, introduced themselves at the N.Z. Association for Environmental Education Conference in January 2002 because they had enrolled in the postgraduate course. In response to learning about their work I interviewed three such teachers and found they all had quite strong ethical positions and well thought-out theoretical frameworks to support their work. I also interviewed two other former students who in chance conversations had revealed they were having, or had had, very difficult experiences in schools that paralleled the experiences in some of the case study research. In one case the teacher had subsequently moved to a small school and noticed a huge difference in school culture.

Phase Four of the research thus consists of interviews with the three teachers who were involved in what appeared to be environmental education activities of quality. It also involves interviews with two further teachers whose stories shed light on issues of school culture that arose in Phase One, especially in Interview Three. These stories were later cross-referenced with the material from the case studies conducted in earlier phases.

A significant piece in this puzzle fell into place during the post-graduate block course in April 2002. During an informal discussion on values, it emerged that six of the eight participants had attended Roman Catholic Church schools, from which they had received (in conjunction with their home life) a strong values framework.

These events are recorded because, while not part of the formal data gathering work, they were data in the sense of adding to the information that contributed to the theorizing of the research. These are part of the "impressions, feelings and irritations" mentioned above that Flick (2002) considers part of the research data and they are described for that reason.

It is hoped that this reporting captures something of the reflexive nature of the later phases of the research and of the confusing context within which they occurred. These are the circumstances in which the theorising that is contained in the later chapters of this thesis also began to crystallise. Conducting the data-gathering work however, requires careful consideration of the rights of those who agree to participate in the research. The ethical considerations that were entailed in undertaking this work are addressed in the following section.

5.6 ETHICS

Throughout this study it has been the intention to conduct the work in a way that completely protects the participants from any potential harm. The only foreseeable harm is the possibility that were teachers identifiable, their comments might be interpreted badly by people working in the same school, from which possible repercussions could arise.

All the participants were volunteers who agreed to contribute. They were recruited in the hope that their experiences would help the understanding of issues related to environmental education and in the further hope of improving both teacher education in the field, and the provision of general support for teachers. Every attempt has been made to preserve anonymity throughout. Although the teachers are of mixed gender, women outnumbered men. Therefore all participants have been given female names to hinder possible identification. On the interview tapes only first names have generally been recorded.

The initial phase of the work was not begun as a research project and thus, did not require formal ethical approval. Despite this I had several conversations with colleagues about the manner in which the early work might be pursued and the ethical implications involved (this included the in course evaluation that was later discarded). I thus sought at every stage to adhere to ethical principles.

Based on the principle of informed consent, I explained the intention of the work at each stage and emphasised it was voluntary. Indeed one person did withdraw from the study in year two. When the work began to evolve into a doctoral study, I informed the participants of this development and captured this in a letter to them delivered at the third interview. A copy of this letter needed to be returned to me after the participants had had sufficient time to read and consider it without my presence. Copies of this letter and all other correspondence relating to the ethical considerations of this research are included in Appendix Three.

On enrolment in the doctoral programme, the Massey University ethics procedures were followed and an application for ethical approval made and approved under the conditions operating at the time (April 2001). The principles of informed consent were supported by explanations of how information would be used and stored, and of possible access to it. It was not originally intended to transcribe interviews but to summarise them from the tapes in order to cut costs and to assist familiarity with the data. I found that having conducted the interviews, familiarity was not an issue,

however the time taken to do the work was. A supplementary letter to participants asking for their permission to have the interviews transcribed was approved by my supervisor and sent to all involved. The transcription was undertaken after those involved had signed a confidentiality agreement.

Members of the Phase One group who made further contributions to the study in Phase Three were provided with the information required in the ethics application approved by the Massey University College of Education ethics committee and did so under the expanded conditions these contained.

Towards the end of the study, all interviews were returned to the participants giving them an opportunity to delete any material they might feel hesitant about. Participants were also given an outline of the directions the research had taken and some tentative conclusions and given the opportunity to comment on these. At this final stage a further copy of the information sheet was included. For participants from the early study, who had not been involved in the second stage, the consent forms from the approved ethics application were also enclosed. Postage paid return envelopes were provided in all correspondence. In the final stage participants could, but did not have to, return edited interview transcripts. They could instead return a letter indicating they had had an opportunity to do so, or were invited to reply electronically. Silence in this regard was taken as an indication of withdrawal from the study and the relevant material destroyed. Participants were on at least one occasion informed of, and agreed to, the conditions of the study. Thus, it was hoped that no possible misunderstandings of the intentions, conditions of participation, and the directions taken in the work could have occurred.

For one reason or another, three participants in the research did not complete all the steps outlined above. All were involved in Phase One of the research and their contributions were discarded. This withdrawal raises some issues about the validity of the conclusions drawn from the data reported in the next chapter. Had any of these participants provided data that disconfirmed the material provided by the other five participants there would have been a problem drawing conclusions from an incomplete set of data, knowing of the existence of contradictory evidence. This would have required mention. In that light it seems appropriate to say that all the discarded information sat within, and confirms, the remaining data. The withdrawal of the three participants thus has not compromised the validity of the remaining data. This data is reported in the Chapters Six and Seven

CHAPTER SIX: Phase One; the initial Study

6.1 INTRODUCTION

The review of the research data gathered over a period of three and a half years and separated into four phases is undertaken in Chapters Six and Seven. This chapter is devoted to Phase One of the study. The intention in selectively reviewing the data is to capture the realities of teachers' working lives and to understand the conditions in which they found themselves. The intention in reviewing subsequent phases is also to see whether this data supports or refutes both patterns in teachers' experiences, and in the way schools function, that emerge from Phase One.

To process the interviews in these two chapters, the names of participants in each phase were ranked alphabetically and assigned letters. A to H for Phase One participants. J to T, missing out Q, for Phase Two. The new recruit to Phase Three whose other members were from the Phase One group, is designated I, and the Phase Four participants are U, V, W, Y and Z. (Other missing letters occur because of withdrawals from the research.)

The Phase One data in this chapter is set out as follows. The data from interviews one and two are reported in summarized form reviewing general patterns and points of interest or significance. In response to Interview Three, two cases are summarized in their entirety in an attempt to capture a picture of teachers' experiences and the contexts in which they found themselves in a reasonably succinct way that still provides a sense of the teachers, daily experiences. To overcome the anonymity of the letter coding, names that begin with the code letter of each teacher have been given. To assist in preserving the anonymity of the participants, women's names have been used in all cases.

6.2 INTERVIEW ONE

Questions

What are your reactions to your first three months teaching? What were the things you expected and those you did not expect?

What things have shaped your development as a teacher?

So what about the environment?

Summarising the first interview

The major theme emerging in this interview was the pressure of work that teachers felt. Even though they thought it would be hard work, teaching involved a weightier burden than they expected. Within this context, teachers' feelings about their job seemed to be further influenced by the level of support they received. In one case, being deprived of the 0.2 teacher equivalent time for professional release she was entitled to, seemed to have clouded the teacher's perspective of the job and the adequacy of preparation for it, although this is a tentative insight (Fay). In Helen's case, even though the school's support was beyond expectations the demands placed on her made her avoid drawing attention to her abilities in case she had to take on further responsibility.

Within this general atmosphere of high workload, environmental education did not figure although only one teacher (Claire) stated this directly. In the case of all the others however, it was implied. In general, where teachers attempted something (Anne, Dee, Fay and Helen), it was clearly incidental to the programme and lacked an action focus, the 'for the environment' aspect that the teachers were encouraged within the course to see as vital. One teacher, Anne, mentioned a specific lack of prerequisite knowledge or attitudes in her class. This suggested right from the start that an opportunist approach was unlikely to be very productive and that environmental education needed to be anticipated and planned. Teachers generally indicated a lack of time or confidence to do this, despite conceding in almost all cases that the opportunity was there to do so. It should be remembered that the environmental education course in their teacher education programme had emphasized this potential.

In probing teachers for significant formative experiences, the responses were also less than inspiring. None evinced any particular idealism, philosophy or passion, despite widely stated enjoyment of their work. They certainly did not acclaim the environmental education course they had done as a formative educational experience that had lifted the scales from their eyes and given them an enduring sense of the political nature of schooling or their own potential as transformative intellectuals within it.

Some more subtle issues appeared below the surface however. There was a hint that young teachers are at the bottom of the hierarchy. Looking past the apparently exploitative behavior of some schools in failing to provide their new teachers with the support the school is funded to provide, there was a great deal of concern about the workload demanded in teaching. Helen for example, kept a low profile to avoid extra responsibility. As well as the constant pressure on time there also was a suggestion (though it was mainly stated by Helen) that numeracy and literacy are the main focus of the school. She commented that there was no time for art or music, and later, "I haven't even done science", her subject specialty. Not unexpectedly then, the teachers had not put environmental education into action although all of them had made some incidental attempts or thought about it.

Reflecting on Interview One

Some important insights arose from Interview One that influenced the next interview. These ideas arose in the general supplementary comments made during the interview conversations. Helen comments on the insistence by her Principal that she use her 0.2 teacher relief time and her comments about good support strongly contrast with the support reported to her by her colleagues at the Provisionally Registered Teacher courses she attended. Despite this though, Helen had hidden her light under a bushel in order to maintain a workload she could cope with.

Throughout the interviews, there was a sense of the immediacy about teachers' awareness of the parents of their students as a powerful influence on them. Anne and Claire mentioned this specifically.

Two issues begin to emerge from these observations that require consideration. Firstly, the context in which teachers work seems to have a much more powerful influence on them than the view of teaching that they carried with them into the school. Understanding this context seems to be of particular importance to this research. Secondly, how do teachers react to this context? Is it simply pragmatic and idiosyncratic, or are their reactions informed by some identifiable philosophy or consistent patterns of ideas or behaviour?

Whilst continuing to pursue the way teachers see their own development and preparation for teaching, some new aspects were added to Interview Two in response to these issues as follows:

Are the teachers aware of, or able to identify, that their curriculum expertise is changing as their teaching career proceeds? Where does the school place its

curriculum emphasis? Where does the environment fit in the schools' approach to the curriculum and in their own teaching?

The remaining issues of school climate and the existence of a guiding philosophy which influences the way teachers work, was considered to be questions more appropriate in Interview Three at the end of the study.

6.3 INTERVIEW TWO

Questions

Reviewing 1999 in hindsight, thoughts for the year ahead?

How well did your training prepare you for the job of teaching as you have experienced it so far?

What do you regard as your curriculum strengths?

Where do you think the school puts its curriculum emphasis?

What about environmental education? Where does that figure in the school's programme?

Reflecting on Interview Two

Teachers viewed their preparation for teaching in a range of ways. Generally, they saw themselves as starting out with lots to learn although Fay seemed to feel particularly confident. It seemed, on reflection, that teacher education has, at its center the vision of an archetypal classroom of 30 or so reasonably well-socialized children within a supportive school culture. Where something close to this occurred and teachers had a reasonable workload and time to reflect, they appeared to be able to link College experiences to their life teaching and match the two constructively and purposefully.

In places where this did not appear to be the case, College preparation was considered less charitably. Helen, for example, in a school with high expectations and good support, voiced the concern that College should have been more practical somehow but could not articulate how. She appeared to be communicating a subtext of school tensions and 'politics' that lay beneath her concerns. Fay, despite great confidence in

her ability, almost artificially propped up the quality of the College programme. She continued to lament being denied the statutory beginning teacher release time at her first school and raised the matter again in relation to the year ahead. One wonders at the underlying causes of her expressed desire to take a year off and do management papers in preparation for principalship after only one year's teaching.

Teachers expressed tensions about their work. Clearly, there were difficulties in the school contexts but their love of teaching generally came through. In stressful situations there was a sense that preparation for the task of teaching was seen as inadequate. No mention of the environmental education course has emerged at this stage.

Some final thoughts on Interview Two

Only Helen reflected on the environmental education course, considering it had opened her eyes to the political nature of the environment. She seemed to be responding to the problem of politicizing her teaching by bringing outside speakers to the Eco-Watch Club she had taken over running. Her school appeared to be under a tightening organizational grip manifest in difficulty expressing views in staff meetings and in a strict curriculum regime. She did, however, see these events within a wider political context. This political context of education was particularly evident in schools facing ERO visits. In this situation a range of tensions emerged. Teachers seem conscious of parents' ability to dictate to the school and their capacity to collect families together to impose themselves on teachers' work. The notion of marketing the school crept into some teachers' language. This was apparent, in particular in Fay's two schools, as a constant stream of public profile projects that impacted on teachers' work.

In general, there was a sense of schools being increasingly constricted in their work, particularly in the cases of, Fay and Helen. Claire's school stands in contrast to all the others with a cooperative collegial and relaxed professional atmosphere, although it was not free from parental expectations.

A further point was raised in Helen's referral to the political nature of the environment. I took it to mean that the way we treat the environment arises from decisions made at a political level in many cases. The comment, however, raises some interesting issues about the way both Helen and the other teachers saw schooling. In contrast to her view of the environment as political, Helen did not seem to be aware that events in her professional life, such as an apparent tightening of control, arise from the educational review regime that arose from a political agenda. This appeared to be

true of all teachers in the sample. None of the others provided any hint of recognition of the political nature of their work. The paperwork involved in reporting, the ERO review itself, the pressure from parents who can move their children, and the new emphasis on Literacy and Numeracy are all driven from outside the school. The pressure that these events generate affect all the teachers but none have understood this or glimpsed that there are perhaps other ways of responding to these issues as possible alternatives to their current school climate.

6.4 STANDING BACK

The work reviewed so far covers sixteen of the forty-six interviews completed during the research. While the importance of capturing the reality of teachers' lives has been stressed, the amount of material available from the interviews is immense. While capturing some sense of that detail is important, there is a point at which too much detail renders the work opaque and for this reason summaries have been used. Despite this, some of the commonalities of the situations can be glimpsed, as can the range of differences. Overall however, there is no sense of the environmental education course having empowered these teachers. Instead there is a sense of them working very hard in a diverse set of situations. It is now the intention to 'stand back and summarise some of the significant patterns that emerge from the data so far. Having done that, and understanding some detail is lost in that process, it is intended to review the remaining material using these statements as a framework.

Point one

All the teachers are very busy. In some cases they hesitate to admit the hours they have to work, seeming to believe it reflects badly on their competence. In entering year two, some felt this workload eased but others felt it got heavier.

Point Two

A factor that increased teachers' work beyond normal limits was the school review process that seemed to increase the amount of paper work they had to read and to provide. School 'profile raising' campaigns, that amount to marketing strategies, also seemed to place pressure on teaching staff to be upgrading everything and to take on extra curricular responsibilities as well.

Point Three

The degree of support they receive seems important in shaping the teachers' views of themselves and their pre-teaching education. Teachers deprived of support were the ones who did not find their second year teaching easier than the first and tended to see themselves as less well prepared.

Point four

Teachers in general were not clearly aware that the causes of the pressures they feel arise outside the school and were often self critical to cover the difficulties they experience. In particular they felt that they were lazy and should work harder. In some cases they claimed to prefer not to have the professional development opportunities that had in fact been denied them. Maintaining these positions seemed to cause deep tensions and attempts to unpack those were in some cases resisted.

Point Five

Environmental education is not seen as an element of the formal curriculum in any of the schools but is sometimes encouraged as part of profile raising activities. Even then it is not always taken up.

Point Six

Most teachers are aware that they have the flexibility to plan topics of their own choice but do not usually take up the opportunity. They seem to lack some combination of background knowledge, time, or planning ability to do so, even though all of these had supposedly been covered at College. Teachers reported avoiding starting because of the responsibility of having to plan for other teachers, and the fear of demonstrating ability and being given extra work as a result.

Point Seven

All these pressures seemed worse the larger the school. Only in the smallest school, where they appeared to be least, was a planned initiative begun. One teacher sought to escape this pressure by undertaking environmental education as an extra-curricular activity and thus hoped to be able to bring in outside help of her own choosing for support.

Point Eight

As a reflection of these pressures, even at the end of their first year, the teachers' perceptions of their curriculum strengths could be seen to be changing from the areas where they had developed strength in training, towards the areas where the school placed its emphasis and on which they spent most time.

Questions

What is hardest to gauge here, is whether these observations are specific to beginning teachers, or whether they are simply more noticeable to them. With increasing 'experience', are these problems overcome by developing expertise or do teachers simply become better at dealing with these pressures but in general remain unable to resist them? With these points in mind Interview Three is reviewed case by case.

6.5 INTERVIEW THREE

Only two interviews appear here. There were withdrawals from the project in the final stages of the research process, but the main reason is that the data is very similar across the interviews. Teachers in general feel more confident on one hand, while extremely conscious of all the things they are supposed to be doing on the other hand. As a result of the complex of demands placed on them, most of the teachers had not addressed environmental education in their programmes. The two summaries included are of the interviews with the teachers who had. Claire had succeeded in planning and undertaking a unit in the smallest and most cooperative school of those in the study. In contrast, Helen's efforts had been thwarted by the pressures of the largest and most difficult school. These two interviews capture the extreme ends of the spectrum while also providing insights into the general pressures experienced by the teachers.

Interview Three: Claire

Claire considered that she now paid more attention to others and had a greatly improved understanding of the classroom as a result of her two years teaching. She felt that while a move to a big school might be a shock, that generally, all her planning and preparation was more streamlined.

She considered her biggest achievement was 'making a difference with children'. Her two years at the school had provided many with their first stable classroom environment. I commented that she had mentioned her class, not herself, in identifying this achievement. She responded, "that's what you are here for".

She was pleased with her science programme and had taught four topics, commenting again on improved planning. The topics, including sound, change, bush, and recycling, had been intensely practical which the class enjoyed.

To my surprise she reported she had also tackled environmental education. She had become involved in the 'clean up New Zealand' project. Last year her attempts to do this had lapsed for lack of parent supervision of the roadside cleanup she had planned. To overcome this, she had organised an alternative at a lakeside site and elicited help from Department of Conservation staff. The supporting topic involved the three ideas of 'reduce', 'reuse' and 'recycle'.

Claire identified the school's focus for the year as oral language and problem solving. I drew a contrast with other schools where the focus was often on behaviour management while here it was on learning. She replied: "We don't really have behaviour problems here or have to focus on things outside the classroom. We did some assessment work as our focus last year and that has helped a lot, previously I was over-assessing".

I would like to note here that the questions for this interview were planned after the second interview when no environmental education of substance had occurred. Since Claire had taught environmental education some of the questions seemed a little hollow. However I canvassed them anyway but in a less serious vein.

When asked about her own commitment, she affirmed the positive position that she had held at College but qualified it immediately by saying she suspected there would be more constraints in a larger school. She had not had to ask anyone's permission to do what she had but was free to do what she liked. She added that the Principal had said, "go for it". This implies she had run her plans by her Principal, for advice, but not considered it as asking for permission.

She elaborated on her good fortune in this regard, again commenting that in other places there may be greater barriers. She had been less independent in her first year and had showed her Principal what she was doing. Claire commented: "She knows I am delivering a balanced curriculum. As long as I do that I can do what interests me and suits the class".

Claire had seen the *Guidelines* but seemed unimpressed. She commented that she already knew how to fit environmental education into the curriculum. How? I asked. "From your course" was the reply, "we looked at where it fitted in with all the curriculum statements". She added that she did not push the environment but did try to get children to understand that they can do something.

I asked where her 'empowerment' to act came from. "It's important, I just think it's important. I always have, that's why I did your course. I believe you can't just keep trashing and I try to do my bit". She went on to express determination to do this at her next school, and perhaps show others that it is not so hard and does not take a lot of effort and time. She hoped to get that message through to colleagues.

I returned to the point that many of her colleagues reported themselves to be in situations that made the kind of things she had done seem impossible. She again affirmed the nature of the school she had been in and acknowledged the possible difficulties in bigger schools. She knew of schools where teachers had little choice on what to do and when to do it.

Asked about her school's culture, she was effusive. "Its lovely! Nice, small, easygoing and relaxed. Everything gets done and there is no pressure, as long as it's done, its fine. The Principal trusts me and can see that the children are achieving and happy. She doesn't need to read all my planning or every file on every child. She can see what is happening".

Interview Three: Helen

Helen, like others, expressed increased confidence but confessed to being "grumpier" than when she trained. She knew exactly what she was doing and why rather than "bumbling" as she had to begin with. "I wouldn't be doing anything else in the world. I am comfortable with my role as a teacher and my place in the school".

She classed being registered as a big achievement and having a training teacher under her supervision as recognition of her competence. She was enjoying the year 5 and 6 class and had begged to remain in her syndicate a further year to consolidate. She confessed to feeling slightly spoilt at having been allowed this however.

Questioned about her science teaching, she admitted to having taught only two or three lessons in the whole year compared to five topics the year before. Pressed, she explained that the staff has no say on the topics they teach. The whole team does one topic for a whole ten-week term and some of the topics have been difficult to teach. She had spent two weeks each term on a 'skills for growing' programme to reduce the topic focus to eight weeks.

Asked about environmental education, she bluntly confessed to having done nothing. She then admitted doing a few things related to litter and trees, but did not consider that to be environmental education. Asked why, she reported that she simply had not been able to fit everything in. She described how in the day prior to the interview (near the end of the school year in December) there had been a Christmas concert practice from 9.00 – 10.30, a syndicate practice from 11.00 – 11.45 and another concert practice from 1.30 – 2.15. I enquired about the learning involved in that. She replied somewhat cynically, “they learn to stand still and sing when they are hot”. “The emphasis is on getting the kids up on stage and parents being proud of them, that’s the hours we put in”. She reported that the staff were “really highly strung” about this and impatient for the concert to be over. Asked where the push came from, she whispered: “management”.

We sidetracked onto the issue of curriculum coverage. There was supposed to be an emphasis that year on Social Studies and Art but the school-wide topics made it hard to teach the whole curriculum. Maths had just been released from the theme constraint. She explained the pressure for resources and materials when the whole school did the same topic theme at once. There was a general sense of dissatisfaction and frustration about this.

To return to the interview theme, I put it that the environment could feature if a suitable approach was taken. “We plan in syndicates and I would have to promote it. It would have to be taken on board by the syndicate. Also there is so much going on that I haven’t sat down and said, where can I put environmental education?”

She went on to describe an emphasis on Maths and Literacy. “We have a huge focus on both, staff development, people observing our programme in reading. We have to tell other staff what we are doing. Basically, by the time I do Maths and Language, it leaves an hour and a half in the afternoon. I would like to do language in context but I have a wide range of abilities and not the range of resources I would need”.

Asked about what had taken her time she replied: “reading; I have changed my whole programme, that has taken time and thought”.

Relating to the school’s emphasis, she replied: “behaviour; we have had a big emphasis on a discipline policy, manners, back to basics school rules. Literacy has been a focus too and ICT, and computers”.

The next question asked about her former commitment to environmental education and how she saw it now. "I haven't done it have I?" "I still think that it's important and one year in my career I will try and put it in, but because...two years..I can go back and reread the readings but...because you were there to motivate us I suppose and we were all keen. But once I am in my own classroom, my own little world with 30 children that look up at me everyday, I forget about that commitment. Do you know what I mean? Not really....Because..."

I asked, "Are you saying that you have more pressing things to do and it fades on your list of priorities"?

"When we were sitting together having lots of discussions it was all ye'ha, it's all good, we pass the course and we want to do this and we want to do that, and we have all these expectations. But when you are in your classroom and you have things thrown in your pigeon hole and you are fighting the paper war and you have this to do, this assessment, reports, parent interviews and stuff you get so caught up that College slowly fades away. The courses you did, even the awesome ones like yours totally get pushed back".

Helen had not seen the Ministry's *Guidelines* and when asked about her philosophy replied: "that's a bit hard! Sigh...I still think that environmental education is extremely important. I've taken on the Eco Watch Club which has kind of failed this year. There is a complete lack of support for it so it's hard..." Seeking more information about the Eco-Watch Club I was told; "well it got taken out of my hands because another staff member decided she wanted to take it over. Because of the year I have had, personally and within the syndicate I wasn't as strong as I should have been". I asked "why would someone take it out of your hands?" "Well, apparently she had shown interest previously when Wyn (Wyn, is interviewed in Phase Four, had started the club while at this school) was here, and when I took it on board she approached me and offered to help. I thought great, the more the merrier, co-operative approach, but she had a very strong personality and being me, I decided not to rock the boat and being so busy anyway let her go with it."

I closed by asking Helen who would she choose to work with. "Someone who is professional, who I get on with, who isn't going to wear out, although I did. Someone who relates to children the way I do."

6.6 REVIEWING THE INITIAL STUDY

The data reviewed here triggers responses at a range of levels, individual, school, and national. Firstly, at the individual level, it is clear that while some teachers (Claire and Helen) clearly understand that the potential to teach environmental education exists in the objectives of the curriculum as it is currently written, the others do not understand this. They see it as an extra rather than an approach to, or a means of, delivering the curriculum.

The other teachers see the curriculum in terms of the separate statements and use or imply the idea that "environmental education is not something I have to do." Thus it drops down the list of priorities and never gets done. Some have done some incidental work in their own way but by the end of the study it has effectively dropped off the list of priorities altogether.

Interestingly too, it is only Claire and Helen that show some understanding of school or environmental politics, who talk explicitly about what they did in the environmental education course and link that to their experience or practice. Fascinatingly, as students, one achieved the highest grades in that course, while the other achieved the lowest.

It appears from this phase of the research that if environmental education was part of the formal curriculum in a specified way it would, according to these teachers' perceptions, be done. However, this conclusion is to be treated with caution. What kind of environmental education would it be? Greenall (1987) summarizes events in Australia in the regard, suggesting that it tends to be delivered in a neutralised form, lacking the critical action focus, and Fien (1997) repeats this concern a decade later. It is clear in this phase too that schools deliver an abridged version of the formal curriculum. This has implications for this study in that the fact that something is included in the curriculum does not ensure it is covered. While in some schools, even the formal curriculum is not being covered, the teachers' perceptions overlook the fact that there are already strong statements on the environment in a number of curriculum areas that go largely ignored.

What is most striking about the data is the cultures of the individual schools and the way these affect the teachers within them. Here it is hard to draw conclusions because

the interaction of individual teachers in individual schools are far from simple and may include many factors which do not surface through the process undertaken here. Some chilling insights do come to the surface though. There appears to be a 'cultural continuum' in schools which can be linked to the behaviour and feeling of satisfaction expressed by the teachers.

At the positive end of this continuum, Claire appeared to be in a completely trusting and co-operative professional culture where, having established that she was doing the job properly, she had almost complete autonomy within the statutory frameworks. She initiated environmental work, including a bush study and roadside clean up, and on meeting setbacks, was able to regroup the following year to overcome the initial obstacles and complete the work as intended.

Anne and Dee are in friendly schools in which they comment positively on the level of support and the team approach. The schools' focus seems to be on evaluating the curriculum and on the wellbeing of the children. These teachers reflect on their preparation for teaching at College and link most of what they did there to teaching as they experience it. Both are apparently uncritical of education in general and accept the school and its priorities and processes as they find them. There is no point of discomfort sufficient to trigger them to question. They have done some incidental environmental work but see no way to include it in a general way. Both signal that they would need to make a commitment but they do not appear ready to do that. Both seem to think that when they are more experienced that might happen and when pressed on this look to outside support.

My assessment is that as things stand they will not do anything transformative in the foreseeable future. Interestingly, both these teachers see their second year teaching as much easier than their first because they understand school systems and how to do the basic planning, assessment and management tasks required. As the tension in schools gets higher, teachers express increasing discomfort.

In general, while there is difficulty in many cases separating the context from the personality of the teacher reporting it, some clear messages can be lifted from Helen's situation. She is positive and optimistic after her first year. She has learned a lot, is aware of school expectations but feels very well supported in meeting them. She is keen to take on environmental work in the year ahead. The school context has changed about her during the study however. There has been a change of principal and the 'tight ship' has become 'over-tight'. Imposed decisions, no professional debate, interpersonal tensions and poor resources are now evident in the school and

the supportive climate has waned or no longer covers these things. Impressing the parents seems to be of high priority. In this culture, Helen's teaching has gone backwards in several respects. She has not taught Science, a former strength, choked by the curriculum-planning regime. She has withdrawn from the Eco-watch club in the face of shallow understanding and authoritarianism, and at the same time finds her energy sapped by trying to hold her syndicate together even though she is a junior teacher. Through this she identifies social as well as learning needs in her class and remains passionately committed to teaching and to children. She clearly identifies that she cannot stand against the culture of the school and the need for in-service training support, a need she saw at the end of her first teaching year. She also affirms the value of personal support within the school, a buddy to work with. Helen's experience adds power to a sense that emerges in considering the case of Fay that the context of the school seems, in this study, to be a very significant factor in determining or predicting what is likely to happen to beginning teachers in their first teaching positions.

Fay was in two schools that appear 'stressed'. In these schools, teachers have been deprived of their release and support entitlements and while Fay makes the best of it in a 'sour grapes' way, not wishing to spend time away from class, she is clearly upset about it. In both schools she has been in there is a sense that the school context is placing immense non-productive pressure on the staff. In both schools this seems to arise from the need to raise the school's profile in the community, that is, the market place.

It is perhaps appropriate here to refer briefly to the evidence provided by teachers who withdrew from the study. One situation almost exactly paralleled Fay's experience while the two others fitted in between the schools in which Anne and Dee worked and that of Fay. In other words, the evidence showed a continuum of school cultures, from benign (Claire), to extreme (Helen), in which teachers' feelings about themselves and their work changed 'sequentially' in response to that context.

6.7 CONCLUSIONS FROM PHASE ONE

From all of this it would be hard not to conclude that when teachers have proper support, and within that framework, the professional autonomy to plan for the learning needs of their class, they are most likely to put what they have learned about environmental education (and perhaps in teacher education in general) into practice.

Schools of any size appear to spend considerable effort on planning and assessment systems (reflecting the ERO focus of the time) and this constrains innovation. Schools who are supportive of their beginning teachers enable them to draw on the preparation for teaching they had at College. However, teachers do not seem to find it easy to work in ways which are outside the planning systems of the school, in cross-curricular ways for example. While it may be possible for confident or dynamic individuals to do this themselves, or lead others, beginning teachers in such schools did not see this as their role and seem to varying degrees passive in accepting the structure of schools as they find them.

Some schools are identified as less than supportive in some regards, perhaps having some mild internal tension or stress. In these schools the pressure of paperwork and workload in general starts to develop an 'edge'. Teachers in these schools are still generally positive about the preparation for teaching but may be slightly more critical of it. While enjoying teaching they are likely to evince the sense that they need more support. These issues become exaggerated in the face of the school review process. These schools are part of a continuum that is apparent in this study, the next stage of which is seen in schools that are clearly under pressure. The symptom of this identified within the study is the failure of these schools to provide beginning teachers with their release entitlement. In this situation, teachers are likely to see their College preparation as less relevant to the classroom as they find it, and/or, exhibit conflicts and tensions in the way they see teaching and themselves. In these schools teachers see their workload as increasing in their second year although the reasons for this do not emerge clearly. In some cases the teachers justify this by saying they were cruising in year one, had support, which is now gone, or now set higher standards for themselves. These statements are often at odds with comments made in their first year of teaching.

At the far end of the continuum is a school that could be described as 'managerial'. It has strict organizational and curriculum regimes, an internally imposed curriculum structure and brooks no professional discussion of how it functions. This appears to be imposed by the 'senior management team'. In this school a vibrant and professional teacher has gone backwards in her capacity to enact a sound classroom programme and to initiate environmental education activities. The atmosphere as she experiences it could almost be described as noxious, and is a cause of deep concern at every level. The forces that enable this atmosphere to develop and persist lie in the restructuring of schooling described in Chapter Three and this school has a particularly aggressive marketing approach. In terms of this study however, this school greatly assists the drawing of a preliminary conclusion of some power, namely: The more structured and

hierarchical (managerial) a school becomes, the less likely it is that teachers within it will innovate. Further, the structures imposed on teachers increase their workload and stress with negative educational consequences. They have less time to focus on classroom teaching, they are likely to receive less professional support, and they appear less likely to be able to utilise their pre-service preparation for teaching.

While it is clearly more and more difficult for teachers in these schools to act transformatively there is no indication from this study that there are any gains in terms of curriculum enactment or quality. In fact the stifling of teacher initiative suggests that the opposite is the case. Dealing with school culture as uncovered here is beyond the scope of a single course within a teacher education programme. Some questions do emerge from the work so far that are worthy of further enquiry however. How committed the teachers were to begin with is one question whose exploration may validate or weaken some of the preliminary conclusions. How typical or extreme are the cases occurring within this study? Is it possible to find other examples that might suggest that these cases are not one off extremes, particularly those at the ends of the continuum? Is it possible to provide outside support to teachers in terms of either training or refreshment in environmental education or in planning curriculum materials that will assist them to act *for* the environment within their schools? Finally, in pursuing the notion of empowering teachers to act, can anything be learned from teachers who are teaching *for* the environment as to where the drive to do that arises and how it is maintained? These are all possibilities for exploration in pursuing the main research question; how can teachers be empowered to act for the environment? In general however, the single course undergone by these teachers does not, at this stage of their careers, seem to have had a significant impact on their practice, with the obvious exception of Claire. Two of the teachers did report positively on the course however.

CHAPTER SEVEN: Follow up Phases

7.1 INTRODUCTION

During the first phase of the research it became clear that beginning teachers were not able to begin environmental education as had been hoped, and that some of the constraints appeared to lie in the school and curriculum context, as described in the previous chapter. However, as explained in Chapter Five, opportunities to expand the scope of this research arose while Phase One was in progress. The first of these, Phase Two, involved following the progress of a more experienced group of teachers who had participated in environmental education workshops funded by the Ministry of Education. The next set of explorations, Phase Three, involved teachers from the first phase of the research in a 'refresher course' with follow up interviews one year later. Finally, in Phase Four, some teachers involved in 'good practice', and two teachers employed in schools with cultures that provided an illuminating comparison to the existing data were interviewed.

The purposes of these phases of the research were to widen the base of data to include experienced teachers, to pursue the effect of further support to the initial participants, and to try and validate the data in general by cross referencing it with the experiences of teachers from outside the initial research groups. The material from these latter three phases, Phases Two to Four, is reported and summarised in this chapter.

7.2 PHASE TWO: TEACHER WORKSHOPS FOLLOW UP

7.2.1 Introduction

The group involved in this phase were, with one exception, experienced teachers who had participated in workshops on environmental education. They volunteered to be involved in follow-up interviews during the second of two Ministry of Education funded workshops which were run by a colleague and myself. As with Phase One of the research, the invitation was to contribute to finding out how to 'do' environmental education in schools by exploring how useful the workshops had really been. The workshops had occurred in March and May 2001. This provided time between to teach the topic planned at the first workshop, and report back on that effort at the second. Only one school group of two teachers actually taught this planned topic however. The

teachers were all interviewed shortly after the workshops concluded, in July 2001, and again one year later. The first interview concentrated on what they had learned about environmental education from the workshops while the second focussed on what they had done in the year since. Because my relationship with these teachers was in general of much less depth than with the Phase One group, matters of school culture or staff relationships were not explored directly. Hints on these matters did arise from time to time and these are reported if relevant.

What was striking about the first interview was that environmental education was recalled by all the teachers as being education *about, in, and for* the environment. Nobody elaborated a definition of the environment. Noticeably absent was a wider view in which the environment included the social, political and economic aspects of human culture that shape our interactions with the physical environment.

The three factors, *in, about, and for*, the environment constitute the Key Aspects of the Ministry's guidelines (Ministry of Education, 1999a). Neither the 'Aims' (Awareness and Sensitivity, Knowledge and Understanding, Attitudes and Values, skills for Participation and Action) nor the 'Key Concepts' of Biodiversity, Interdependence, Sustainability and Individual and Social Responsibility for Action, were mentioned by any teachers. Within the workshops the concept of Interdependence had been particularly stressed in the hope of widening understandings of the scope of environmental education but this was not initially mentioned by anyone. Almost without exception, considerable time was taken up by participants in the first interview explaining why the planned topics (from workshop one) had not been covered, and what was intended in the months ahead.

The way in which these intentions were realised was explored in interview two. There is no intention in reporting on these to compare intentions with achievements. I simply want to report on what did occur and see what can be learned from it. By this time, in both conducting the research and reviewing the data, there was a clear sense that there is less 'institutional inertia' in small schools. Thus the results of the data in this section are reviewed beginning with the teachers in the smallest school and working through by school size.

7.2.2 Interview data

Jane and Kate were two of the three staff at a small country school. They had a native bush remnant nearby which they hoped to utilise as an environmental education resource. In fact they were involved in two sets of environmental education activities but neither was in the bush remnant as they had intended. Both initiatives were

'externally supported' by Department of Conservation staff who were conducting initiatives in the district. They clearly wanted to involve the community in these projects and did this through the school. One involved identifying and monitoring a native plant of very limited local distribution and considered endangered. The second involved participation in monitoring the presence of native bats which are also uncommon and threatened.

The teachers had not planned these topics but capitalised on the opportunity provided by the expertise of staff from the Department of Conservation (DoC) and made the activities undertaken by them the focus of classroom work. Whether or not other activity would have occurred had these opportunities not arisen is impossible to say.

Lorris and May were in a four-teacher country school. The school had a very small but useful native forest remnant stream running through it adjoining the grounds. Set in an intensive dairy farming area and a few kilometres from forest clad foothills the area presented wonderful opportunities to start on natural environment topics, explore the impact of farming on stream water quality and to look at all of these things in the context of local history. As a result of this potential we devoted some of the Ministry funding available to us to this school as a 'pilot school' in which to develop curriculum and school organisational initiatives.

May and Lorris had not taught the units they had planned at the first workshop. In the September holidays of 2001 we had a meeting with the four teachers. We planned two topics at the meeting. The first involved the junior school classes (Year 1 - 4) in the bush remnant while the senior school (year 5 - 8) topic called "town and country" pivoted on the senior schools visit to the capital city.

When we returned in early 2002 it was to some disappointment. Lorris had resigned to travel overseas, a new Principal and Deputy Principal had been appointed, and neither of our topics had been attempted. Further discussion of this school in relation to the pilot school project is contained later in this chapter, however, no environmental education activity occurred, despite apparently propitious circumstances in the school and extra planning support.

Nina and Olly worked in a large city primary school. Their focus became a rather messy treed area on one edge of the grounds. With their classes, they undertook a campaign in which they had a general tidy up and replanting of this area using native plants, and installed a number of bird nesting boxes. They did this in conjunction with the local garden shop which ran a community discount purchase scheme and donated

plants to the school so there was an aspect of enterprise in evidence. The teachers linked the environmental activities with their classroom programmes.

Patty was also at a town school and her reports were very modest. Her buddy teacher had only attended one workshop so Patty had less support than most of the other teachers. She initially reported doing very little. She had quite high (and realistic) expectations on what constituted environmental education and, while she had done things others might have reported with some pride, she did not make much of these. Interestingly she didn't try anything unless she felt she could achieve it and when she did so, didn't think this was a big deal. She was very hesitant to talk about the school and gave the impression that there was some organisational tension that had constrained her initiatives although she did not elaborate on what this meant. She had incorporated some environmental aspects into one topic in 2001 and made a promising start but when interviewed in 2002 had not planned and taught any environmental education topics although continued to add incidental aspects when they fitted.

Robin's responses to the course in her school were similar to Patty's in that no change to her programme had been undertaken but incidental opportunities had been taken to discuss environmental issues or to tune discussion towards them.

Sheila and Tabitha worked in a large secondary school. They used their non-contact time to meet regularly. They worked in different ways but coordinated their activities. Sheila worked with the school environment club to develop a school-wide recycling scheme. She pursued this relentlessly and overcame major obstacles in getting it established with student involvement. As teacher librarian, she also developed an environmental focus by providing resource books for teaching topics in consultation with Tabitha. Tabitha attended curriculum meetings, focusing initially on Science and Technology, and helped develop and encourage environmental topics. The two worked closely together through their regular meetings despite a difficult school climate (strong subject demarcation and an intrusive and stressful national assessment framework being imposed upon teachers). This school became our second pilot school and is also discussed later.

Theirs was the biggest and most difficult educational environment but Sheila and Tabitha worked the hardest and most persistently of all the teachers. They did not achieve flashy results but developed initiatives in a remarkable number of areas. These were however 'indigenous' initiatives, generated and formalised within the school, in contrast to the 'externally supported' or incidental events that occurred in most other places.

In summary, the achievements of phase two were rather modest. Teachers involved in this phase were from six schools. By their own reporting, one school had done nothing (Lorris and May). In two schools (Patty and Ruth) incidental teaching had occurred and this parallels the most common response in Phase One of the research. In Kate and Jane's school, externally supported opportunities had occurred, while in the remaining two schools, indigenous activities had arisen. The school grounds programme begun by Nina and Olly is, as Fien (1997) and Lousley (1999) indicate, a common starting point. It is safe and involves action but not of particular depth. It is not really addressing the root cause of the problems of habitat destruction and predation and will also be discussed later. The last case, Sheila and Tabitha, is the most promising in terms of results but for another reason too. The teachers in the most difficult school have done the most among the Phase Two group. It is significant that all the teachers in this group (save one who had resigned to travel abroad) were very experienced (over 10 years teaching). The results however, are very similar to the events of Phase One, thus the notion the more experienced teachers might be more active does not initially hold up to scrutiny. The most interesting question that arises relates to the particular qualities found in Sheila and Tabitha that inform their activity in a difficult context.

This aspect is the focus of Phase Four where one intention was to find teachers involved in good practice and to try to determine the strengths, abilities or qualities, if any, that supported and informed that activity. The special qualities that Sheila and Tabitha brought to their school are discussed later in relation to Phase Four.

7.3 PHASE THREE

The previous phase arose from involvement in workshops for teachers introducing the *Guidelines for Environmental Education* (Ministry of Education, 1999a). As a result of this work, a workshop with the teachers from Phase One of the study that built on developments in the field since they had graduated seemed purposeful. As outlined earlier, the course they had done in 1998 involved a thorough analysis of the New Zealand Curriculum and identified places where the intentions of the Tbilisi Declaration overlapped with the objectives of the curriculum. However, the *Guidelines*, published during their first year teaching, and which most had not seen, provided a focal point for a 'refresher course' in environmental education.

To encourage participation, I was able to provide reimbursement to those travelling to attend, and to provide lunch for everyone. Four teachers committed themselves to a

day workshop. This involved three of the original group, Anne, Dee, Helen and one new member, Ina. Ina had been a member of the same cohort but taken a one-year teaching position on finishing her Diploma. She had then returned to University to complete her degree before returning to teaching. Thus she had done the same course but in 1999, and had the same period of teaching experience.

I conducted a preliminary 'catch up' interview with Ina and prior to doing so, discussed what the interview would be about, asking her to reflect on the issues in preparation. In response she provided a one-page summary of her reflection. I had initially asked her whether she had tackled any environmental education topics with her class in her first two years of teaching. On receiving a negative response I had simply asked her to reflect on the reasons for this. Ina's comments are reported in full below under her own heading.

Impressions on what happens to enthusiasm when beginning teaching

Having taught for over three years now in both a reasonable sized city school (where my teaching career began) and a small rural school, it is a valuable exercise to reflect on what has happened and, in this case what hasn't happened, according to plan.

As a student having the allocated teaching practice length glimpse of schools around the area, I realized that Science didn't receive much attention in many classrooms. Apart from the common "Bones" (Living World), "Magnets" (Physical World), "Milk" (Material World) and "The Moon" (Planet Earth & Beyond) units, I hadn't observed the teaching of many gutsy, hands-on units that we were involved in at College.

Armed with this, enthusiasm, and some new ideas, I began my teaching career set on making a change. It is only about now that I feel that I can realistically begin to make some sort of noticeable change with the teaching of Science, (and Environmental Ed.). It is certainly easier said than done, for a variety of reasons.

Initially, School Schemes along with more senior, dominant and confident teachers, govern team-planning meetings. That's not to say that beginning teachers' ideas aren't encouraged. But if they don't match what's already set out on paper, they can end up in the "maybe next year" basket. This can be a blow to one's self-confidence for a start!

Secondly, with the onslaught of 30 new children to teach and learn about, the professional paper war, assessment, zoo trips, meetings, swimming sports, parents...(you get the picture!), it is a demanding task just keeping one's head above the water. Even with good support, the first term or so can be somewhat overwhelming. For this reason it can be easier to say nothing except, "thanks" when the pre-written in 1988 "Bones" unit is handed to you!

At the risk of sounding negative, it is easy to see how hard and enthusiasm-squashing entering the school work force can be. I'm not trying to lay blame on anyone in particular either. Just to state that the (increasing) pressures placed on all teachers make it tough to maintain a vibrant, motivating series of topics that covers all our curriculum requirements over a year.

On a more positive note, things do tend to become easier as your experience grows. In my second year of teaching I decided to take responsibility for all the Science planning in our syndicate. This was generally well accepted and allowed me to take some of the ideas that motivated me and put them into new units for all. However, the units were still confined to specific topics already in the school scheme. Therefore innovative topics such as Environmental Education did not really get a fair go.

(Ina, 2001)

Ina's summary is succinct and to the point. It captures much of the orthodoxy of New Zealand primary schools and the status issues that determine, or bias, social relations against initiatives by beginning teachers. It might have been said by nearly any of the teachers from Phase One, with the possible exception of Claire. It hints at an answer to the question raised earlier, do teachers learn how to confront this with growing experience or just learn to operate in it? Ina hints that the latter might generally be the case. The Phase Two data in the previous section supports this view.

At the Phase Three workshop we did two things. Firstly we spent the morning doing a mini-workshop introducing the *Guidelines* that paralleled the work done with the Phase Two teachers. In the afternoon we chose two topics from each teacher's long-term plan for the second half of the year. We then collectively developed two environmental education topics for each teacher that fitted their scheme. These were cross-curricular, and had an action component *for* the environment.

A year later only one of the four teachers, Ina, had taught the units of work planned at the workshop. Ina was teaching in the smallest school. Some other differences are also

evident in her case as follows: firstly, Ina could not attend the workshop and I visited her school as an alternative. At the workshop, the topics that the three teachers had available to pick from were not very suitable and we had to push them out of shape a little to fit an environmental education theme. Thus, from the beginning, quite a lot of effort was needed to 'make a fit'. In contrast, Ina had two ideas for topics but was flexible. She wanted to do a Weather topic and to do a Bush (NZ native forest) study. Here some important differences occur although I did not record topic detail in all cases. In Ina's case I knew the school well. Further, while studying at college, Ina had covered topics on 'Bush' and 'Weather' in course work and thus had good background knowledge in these topics. As well as this, the school had a small remnant of native forest in close proximity that I was familiar with. I was therefore able to direct her straight to a suitable site for the 'Bush' topic within five kilometres from the school. As well, the remnant had severe and noticeable damage on the side facing the prevailing westerly winds that provided a good entry point for studying weather. Ina also appeared to have a matter-of-fact determination to make a start. She might have said something like "I'm keen to give it a go".

Thus some key differences appear. Ina appeared to have, or to have created, curriculum flexibility. She had good background knowledge of her topics, I was able to provide specific rather than general help, and finally, whether independent of these factors or because of some or all of them, she seemed more determined to make a start. Perhaps in the other cases the poor fit of the available topics presented an initial order of difficulty that undermined the sense that the work could be done successfully. These differences provide helpful insights.

7.4 PHASE FOUR

7.4.1 Introduction

In considering the way this data is reviewed, the chronology of the research outlined in Chapter Five needs to be kept in mind. The phase of the research reported in this section was the fourth to be commenced but took place in the time between the initial teacher interviews in Phase Two in July 2001 and the final interviews in mid 2002. It occurred in March 2002 just prior to the postgraduate block course that has been mentioned and that began to trigger what are seen as crucial insights into the nature of teacher empowerment. In the first part of Phase Four, three teachers were interviewed about environmental education and about school culture in general. One interview involved two teachers together. As a result of this interviewing and the insights

gained at the block course mentioned, some theorising began to crystallise in the months of April and May 2002. Thus a specific question regarding motivation was put to Sheila and Tabitha (who were involved in a Phase Two pilot school) when they were interviewed in mid-2002. Their response to that question is reported in this section because it is most relevant to this area of the research as will be explained. The second part of Phase Four involves two teachers who, in conversation unrelated to this research, began talking about the extremely difficult professional climates in which they had worked. These teachers agreed to share their experience as part of this research. Their data is seen as cross referencing the material on school culture provided by Helen in particular, and hinted at by other teachers. Thus Phase Four involves interviews with five new teachers and reflection on the insights provided by two Phase Two teachers.

7.4.2 Interview data

Una and Valerie worked at a two-teacher school and had undertaken a number of curriculum initiatives that will not be reported in depth here. This is partly because the detail is not crucial and partly because it would risk identifying them. Sufficient to say that their work involved a comprehensive approach to the environment as well as efforts to change both childrens' and the school's patterns of behaviour and consumption. Of central interest over two comprehensive interviews was what powered them to make the changes that they had, with the personal cost of extra work that was involved.

Una described herself as "a greenie from way back" and linked this to green politics and issues of social justice she had always been aware of. In contrast to Una's overtly political stance, it was for Valerie, a moral issue. She had attended a Roman Catholic Church School and the teachings of the church had been part of her upbringing. These continued to shape her caring attitudes toward people and the environment. Having made a decision to begin focussing on environmental education, Una and Valerie then embarked on a combination of strategies. They sought out relevant professional development opportunities, they sought the assistance of the School Advisory Service, and they actively began collecting teaching materials and resources. Having canvassed a range of 'external expertise' they then interpreted the ideas for themselves and developed an 'organic' approach within their school. They worked independently but not in isolation. The fact that they composed virtually the whole teaching staff of the school seems to have been a crucial factor in that the 'institutional inertia' to change seemed low.

In contrast, Wyn's experiences were less dramatic and could be traced in a slow and sequential pattern. Wyn too was brought up in a Roman Catholic home and attended a church school. She reported an incredible sensitivity to natural events. She remembered with great clarity, as a very young child, being captivated by the eruption of the new leaves of a rhubarb plant. She had sat for "hours", day after day watching this miracle and could not understand how others did not find it as miraculous as she did.

She had wept over a bird with a broken wing and still found it difficult to reconcile her feelings about life with the need to control pest species. In an earlier period of her life, she had lived on a small farm and been almost self-sufficient. Having moved to the city, much of this experience had shifted to the back of her life. It was reactivated when she married a Department of Conservation Field Officer and as a result she began to think she should do more at school. Her response was to set up the "Eco-watch Club" which was mentioned by Helen. With her husband's support (external expertise) she had involved children in a weekend experience programme involving tree planting in particular. She had then shifted to a school near my own institution. It is at this point that I impacted on her practice, quite inadvertently, in an important way. Believing her to be an experienced and confident environmental educator I had approached her and asked her to trial a teaching resource I had written. Wyn did this with her whole syndicate (this is reported in Chapman, 2000). This proved to be the starting point for her subsequent development. Having enjoyed the experience and seen the response of her class, Wyn then sought out and used a Stream Study resource provided and supported by the local council.

Shortly after she had done this I approached her to be involved in the Ministry workshops. This involved attending training with environmental educators from other regions. At about this point Wyn began to plan and work independently (indigenously). She was supported at school by a very collegial Assistant Principal and was subsequently given a management unit in recognition of the importance of the contribution she was making to the school.

The responses made by Sheila and Tabitha in mid 2002 after the other Phase Four interviews were completed add to the breadth of the data above. I decided that the results they had achieved constituted a graduation to 'active teacher' status and asked them "what motivated them?" with the intention of cross-referencing the Phase Four data.

Sheila explained that she had, from school days, had an interest in the environment and this had remained a lifelong concern and passion. Tabitha looked at me as if I

should know better and said, "It's probably because I am a Christian, David", in understated tone.

It can be seen from this data that these five teachers all had a particularly strong values base that drove their work. Taken with the realisation at my postgraduate course, in March 2002, that six of the eight members had attended church schools, this began to shape the way that I looked at the notion of empowerment. An important emerging factor appeared to be a strong values framework, often, but not exclusively, gained from religion. Other factors work in concert with this, it seems. Before reviewing these ideas however, it is useful to review two further interviews that are not about environmental education at all but do shed light on the school context in general. This is undertaken in the next section.

7.4.3 Views of schools from outside the field

Throughout this work, but in relation to Phase One in particular, I have been increasingly concerned about the sample size. Whilst being well aware on one hand, that ethnographic research provides insights that are not intended to be generalised or to require random sampling, there is on the other hand a desire to provide insights that are sufficiently broadly based to be of some use.

Within the Critical Problem Based approach described in Chapter Four, there is a need in the first instance to accurately describe the nature of the problem. In doing that one seeks reassurance that the cases one has used are not extreme. I was particularly concerned that the school Helen found herself in was unusual and this might render the emerging description unreasonably negative. During the period in which I was thinking about these issues I had two opportunities to talk to teachers about other schools, outside my study, which reassured me about these concerns.

The first of these teachers was Yvette. She had been a student in my class some years ago and had travelled extensively overseas. She had recently been working in Western Australia in a school she considered to be pretty tough. She described having to intervene in a fight in which a knife had been drawn. She had held the armed student against a wire fence while other students got help. Despite the obvious tensions in the school though, she had enjoyed working there. She had decided to return to New Zealand to be closer to her family and got a job in a 'local' school.

She found the atmosphere there appalling. There was an extreme managerial culture in which the Principal appeared to dictate everything that happened in the school. The

situation was such that almost all the experienced teachers had left and 80% of the staff of about twenty were either year one or year two teachers, not fully registered. Experienced staff had left because they disliked the environment and were unable to modify it. Yvette reported that the Deputy Principal had five years teaching experience and one syndicate leader was a year two teacher. She was so unhappy and disillusioned by the experience that she had resigned after less than six months and was returning to Australia.

Zena described a less extreme situation with more subtlety. Also a former student, Zena had made the comment during her first term in the classroom that might have been made by any of the beginning teachers in this study. "There is so much that you have to do that what you want to do doesn't get a look in".

The first school she worked in was difficult. Of course in the early stages it is hard for a beginning teacher to distinguish between what are the generic difficulties in learning to be a teacher and what are the specific idiosyncrasies of the school they are in. For Zena these things were in part clarified. While in the first period of her employment she had set up her classroom and put in place a programme with a sound justification, she found that on several occasions she had been overruled on pedagogical matters. She considered the basis for this to be whimsical and that senior staff had simply exercised their power without justification. She found this very frustrating. Part way through her second year at the school the Principal won a new position and there had been a reshuffle in the senior management to cover the absence until a new person was appointed. The school had also been involved in a curriculum development initiative and the temporary management team began a process of cementing this into policy in a way they hoped the new Principal would be unable to change. A contrived consultation process began. As often happens when people behave unilaterally and brook no discussion on one set of issues, they are forced to stifle discussion on *all* issues in order to maintain their 'infallibility'. This occurred. Long-standing school procedures were changed without notice. Jobs usually attached to senior positions were imposed on junior staff while the beneficiaries were involved in non-specific 'management' roles. The situation became so whimsical and dictatorial that Zena began to hate her job and confessed there were mornings when she cried on her way to school.

Zena then applied for, and won, a position at a four-teacher country school. She loved it. In her second year there she had undertaken a number of initiatives and was enthusiastic about her job. Zena's case in particular, emphasises the impact of school culture on the way teachers see their work and positively cross-references with the experiences of Helen and Claire in Phase One and Ina in Phase Three.

Yvette and Zena's stories reassure me that the other cases reviewed are not extreme. Further, Zena's move from a school which had moved into a managerial mode, similar to that experienced by Helen, to one much more like that experienced by Claire, provides a sense that the observations from Phase One are usefully representative.

7.5 DRAWING TOGETHER THE THREADS

It is now important to draw together this data and attempt to interpret events in a useful summary form. In doing that, I intend to start from the most positive ideas and canvas the material down through the degrees of difficulty to the negative end of the scale. Some obvious possibilities for future action do suggest themselves but there remain a number of issues that are vexing.

Behind all the work of teachers in this study is a complex interplay between commitment and the barriers to innovation. All the teachers involved have shown some measure of commitment. All the Phase One teachers opted into a university course on environmental education and then agreed to be part of this research. The Phase Two teachers all attended two days of workshops (albeit in school time) and agreed to be part of this research. The active teachers had not only taken school based initiatives but also made themselves and their work known to me and agreed to share their stories. None of the teachers involved in any of the phases had to be found; they all came to me, as it were.

Their level of commitment is not possible to quantify however. Set against this commitment is what I have called the 'institutional inertia' of the school. This appears to increase in relation to school size. It is also affected by the degree of organisational structure which I have summarised as 'managerialism'. This is the degree to which the senior staff impose their views on teachers and reduce professional autonomy. In general this involves the amount and nature of paper work but can extend to imposition of rigid curriculum restraints and excessive marketing activities.

More experienced teachers, it was proposed, might have the confidence and 'institutional capital' to act more independently in any particular situation than beginning teachers. This is not strongly borne out by the data however.

In general, teachers who have taken independent action tend to have a noticeably high level of commitment which is often associated with strong values. For Claire and Ina, looking after the environment was basic to their thinking, while Wyn, Sheila, Tabitha, Una and Valerie all made very strong values statements. Ina also expressed strong values but her case will be reviewed specifically in a different light.

Claire, Ina, Sheila, Tabitha, Una, Valerie and Wyn all undertook what I call 'informed indigenous' environmental education. Claire, Ina, Una, Valerie and Wyn provide the best examples of this indigenous practice. They sought outside expertise, used resources provided by outside agencies but developed something of their own that drew on these and fitted their classes and their school contexts. Their work was generally well theorised in that it targeted environmental goals reasonably well and took action that addressed, or taught children to address, the causes of problems, commensurate with their age.

The example provided by Nina and Olly, which was led by Nina, could be described as 'indigenous' in that it arose from the teachers. It is an example of an enthusiastic start to environmental education but does not really address significant issues. This is described as a 'naïve indigenous initiative'. It is at heart, a school grounds enhancement programme. Such projects are not usually well theorised in that their engagement with environmental issues and goals tends to be light. Vowless (2002) provides examples of projects of this nature.

The other common response is to import outside expertise. Wyn did this in her earlier development stages but 'matured' past this stage. Kate and Jane adopted this strategy in participating in DoC initiated activities. The events at Lorris and May's school used my expertise but did not result in any 'indigenous' capacity developing in the school. These are described as 'imported expertise initiatives'. This type of initiative does not, by itself, involve any in-depth conceptualising or theorising of environmental education by the teachers, however, depending on the quality of the outside expertise involved, is likely to involve higher quality experiences for learners than indigenous initiatives of the type Nina and Olly undertook. This is the type of activity that was celebrated within the Ministry of Education contract described in Chapter Five.

In all the remaining cases teachers reported undertaking incidental activities which were probably of dubious impact. These involved discussing environmental aspects of a topic or involving children in learning activities about or in the environment.

Thus, at the positive end of the rating scale, 'informed indigenous' activities are of the best quality of the work reported. 'Imported expertise' activities, which could be

excellent, but do not involve teacher theorising and planning, and 'naïve indigenous' activities in which tree planting and recycling usually figure prominently (both in New Zealand and internationally) come next. Finally come 'incidental activities' which are not planned and may at times be of ephemeral quality.

There are however, actively negative factors that affect teachers' likelihood of undertaking initiatives. Teachers were in general discouraged when there were strong managerial pressures to conform to school-based patterns of professional behaviour. This was apparent in secondary schools in general, but also in Patty's, and particularly in Helen's schools.

Beginning teachers were particularly undermined by the denial of professional support (Fay) and when this occurred did not feel well prepared for teaching. Despite this, some beginning teachers attempted extra curricular initiatives of an 'informed indigenous' nature. Helen attempted to maintain the Eco-watch Club started by Wyn, planning to use outside speakers, but internal politics caused her to withdraw.

In general, the workload and marketing initiatives undertaken by schools simply weigh teachers down, especially beginning teachers. Fay (in both schools) and Helen indicated their schools were marketing themselves quite aggressively and this involved such things as musicals and extra curricular initiatives to impress parents. All the phase one teachers except Helen agree they had the flexibility to begin environmental education if they wanted to, but only Claire succeeded in doing so within the school programme. Across the board, the emphasis on numeracy, literacy, I.C.T., and the pressure on teachers generated by ERO visits were clear in all phases of the research.

Ina's case is worthy of special review here. She had not taken any initiatives in her first two years, however, on arriving at a small, flexible school (with low institutional inertia), she was thinking about making a start. My approach to join Phase Three of the project was perhaps timely. Ina had sufficient background in environmental education and had chosen two topics that she had studied at college and thus had subject knowledge as well. I provided quite a small input of advice of a specific nature by telling her of the nearby bush remnant, explaining some of the issues that might arise in studying it and linking its condition to the proposed weather topic. Ina was then able to operate independently on those topics. Overall however, the environment was simply not an issue for schools in general.

Phases Two to Four thus suggest answers to the questions that arose at the end of Phase one regarding the possible extreme nature of some contexts, particularly that of

Helen, and the limited ability of beginning teachers to innovate. The school contexts in Phase One were not extreme. Experienced teachers do not seem markedly more resistant to contextual pressures than the Phase One teachers. Specific support and background knowledge were provided in Ina's situation and this seemed helpful. Finally, the most 'empowered' teachers appear to have strong values and to have theorised what they are doing.

7.6 THINKING ABOUT DATA QUALITY

In discussing research methods in Chapter Five, the point was emphasised that the separate phases of this research are not seen as triangulated by having gathered data about the same event in different ways. The phases were seen rather as cross-referencing each other by looking at different events and in doing so seeking to illuminate the central problem, namely; what happens to environmental education in schools? Two key factors need to be kept in mind here. The first requirement within the framework of Problem Based Methodology is to develop an accurate description of the problem which in this case involves understanding the 'state of play' in schools. The second, and more complex issue, involves responding to the problem situation.

Within this research, the phases are not expected to provide the same information. They should provide sensible corroborating information about what is happening in schools. While each school will be different, it would be hoped there might be similarities in the way each institution responds to the constraints of the rules and structures they work under. Teachers' lives will be shaped by individual school contexts, by age and experience, but one would hope that there are commonalities that might be evident. Without these, education would perhaps be unfathomable. The data does appear to overlap and provide a coherent set of pictures that illuminate the problem in the way that was hoped for. Within Phase One the feelings teachers have about their work relate to school size and culture. All the reports from these beginning teachers are consistent with Ina's description of beginning teaching. The increasing level of institutional inertia with size is evident in all the other phases of the research. This inertia is not impossible to overcome but the task requires considerable effort.

Further, there is a believable set of responses to environmental education training activities. I say believable because on one hand they are graded, while on the other hand they are influenced by several identifiable factors. These include values,

background knowledge, understanding of environmental education, level of support, and school culture. They appear to interact in ways which are idiosyncratic to the context and that are difficult to quantify. The research thus provides insights that I am confident have an aesthetically good feel, to borrow Silverman's (1997) concept. This is a strongly subjective interpretation however.

Consistent with international research the data does not paint a picture of environmental education practice that is easy to enthuse about. It identifies complex problems and deficiencies. The real challenge to the research is to suggest ways of responding to these issues and developing the teacher abilities that lead to independent indigenous practice. This is what is now meant by empowerment.

The difficulties form an inter-related set of obstacles that has been called an impasse. These difficulties include the following issues. (1) Environmental education is not highlighted in the formal curriculum; (2) As a result it is not covered in any depth in pre-service or in-service education; thus, (3), there is a general lack of knowledge of the field. This reinforces its lack of importance. As well and perhaps because of this, (4), there are very few resource materials for teachers to draw on. Further, (5), environmental education involves linking across the curriculum which involves another set of difficulties. Secondary teachers, who generally have strong subject knowledge, are constrained by strong institutional subject boundaries while primary teachers appear to lack the background knowledge to take advantage of the institutional flexibility they often enjoy.

This lack of background perhaps contributes to the sense of a crowded curriculum, but this is also due to the way the curriculum has been structured around Objectives. This perception of a crowded curriculum is mentioned in the Curriculum Stocktake report (Ministry of Education, 2002) as constraining any significant curriculum additions so it would be hard for even a willing Government to introduce a substantive initiative, such as an environmental focus, without a major curriculum review. Current policy could not be described as willing.

Thus the empowerment issue cannot be seen in terms of simple problem solution addressing the issues that emerge from this research. Issues within schools do contribute to the impasse however. One such issue is the professional culture in schools. While some schools do have collaborative cultures, it must be recalled that the wider social atmosphere has been characterised as a culture of distrust (Codd, 1999). Within education, this has been created by increased accountability regimes and reporting, by the school review process and by the creation of a competitive

educational market place. All these things emerge as factors crowding teachers' lives in this research.

Rather than being a problem, as Robinson (1993) uses the term, this is an educational impasse that requires the conceptualisation of some new approaches, reminiscent of the calls of both Walker (1995, 1997) and Oulton & Scott (2000). This is in a way reassuring, since these authors have done extensive background work in reaching their conclusions. Were I able suggest some simple, school-based initiatives in response to the general lack of activity in the field, there would be room for suspicion about the depth of my analysis. In coming to similar conclusions, the empirical work I have done is usefully further cross-referenced by them. I hope I have gone to a greater effort in describing the impasse however.

Interestingly these authors refer to Robinson's (1993) analysis. Walker (1995, 1997) and Oulton and Scott (2000) use Robinson's (1993) work to support the claim that critical theorists have not provided theories of change that assist progress. Sadly neither of these authors have proposed ways of thinking that are capable of grappling with the compound issues that environmental education is yet to overcome. The remaining chapters of this thesis address this impasse, discuss ways that it might be approached, and examine the implications that arise from the suggestions put forward in response.

7.7 EPILOGUE

This section concludes the data interpretation by reviewing the 'good quality initiatives' from this research with hindsight. The first are the two pilot school projects. The others involve the two schools where exemplary practice was on show. The reports are brief, but their impact is powerful and confirms the significance of the *impasse* described here.

The first pilot school project, funded by the Ministry of Education, was in the school at which Loris and May worked. When our team returned in early 2002 to follow up the units planned for term four 2001 we found nothing had been done. Basically to save face, I devoted days of work to this school with the support of my consortium colleague. This involved taking every child in the school into the bush remnant, in small groups, to remove weeds. Several trailer loads were removed. The consortium members gathered native seeds and we spent a day with all the pupils in turn, again in small groups, making 'seed balls' (a clay mix containing seeds). The seed balls were

later spread about the remnant by all the children. This meant that some substantive events had been achieved with the funding. There was no illusion that this had been done by the school.

I continued to provide support to the school and worked closely with the new Principal. He was forced to admit that the school had so many issues to deal with he simply could not expect his staff to undertake any more. The latest issue for them was a review of schools in the district that forced them to merge with another small country school nearby. By mutual agreement we let the initiative go.

The second pilot school held lots of meetings, planned topics and built these into the year nine and ten programme. Planning attempted to make links between science, Technology and Social Studies. While this was being attempted an industrial campaign began in response to the huge workload being demanded of teachers in setting up the new National Certificate of Educational Achievement qualification structure. We again reached the point where, having devoted our funding as best we could, we had to acknowledge that, with the best will in the world, the teachers had too much to do. In the year following, Tabitha was awarded a fellowship and was away from the school and although Sheila succeeded in establishing a properly supported recycling scheme, she worked alone.

The year after the research data was collected Wyn won a position as principal in a small country school. Later that year, 2003, one of my post-graduate students went to Wyn's previous school to enquire about the environmental education undertaken there and found that the initiatives Wyn had begun had lapsed without her leadership. In the final case of the school where Una and Valerie worked, Una shifted schools in early 2003. Thus the initiative lasted with its founding staff for under two years. This epilogue is not making value judgements about teachers' efforts. It suggests though, that the level of energy involved in the best initiatives reported in this research, demands more of teachers than is sustainable. Even when they can manage the commitment involved, if they move schools, the initiatives are often shown not to have taken root in the school. Thus, while these initiatives give important glimpses of the possible, they do not seem to be generalisable under present conditions. This directs attention back to the *impasse* discussed and demands thinking about ways in which environmental education might be conceptualised and conducted in order to confront this impasse. Without 'new ways of thinking', the issues of uptake reported here, and in the literature, appear to be ongoing.

CHAPTER EIGHT: Grappling with the impasse

8.1 METHODOLOGICAL CRITIQUE

8.1.1 Introduction

In Chapter Four, Problem-Based Methodology (PBM), in a modified form, was proposed as a useful theoretical approach for the research in this thesis. The expanded scope of the modified approach suggested held promise for an accurate description of educational problems, especially the wide-ranging issue of empowering teachers in the field of environmental education. Multiple case studies were hoped to provide a comprehensive description of the issues faced by teachers and this level of descriptive accuracy was expected to assist in developing responses. The expanded approach was to draw on educational sociology and curriculum theory in order to address the complexity of the issues facing teachers in schools and the research has brought these issues into focus. The problem impasse described in the previous chapter draws attention to the political nature of the curriculum and the way it is impacted on by the Government's agenda for education where a focus on Numeracy and Literacy dominate school programmes. These are issues that demand a theoretical examination that goes beyond the subjective realities of teachers in schools and which will be explored in Chapters Nine and Ten.

The nature of the impasse provides a significant challenge to PBM, even in the modified form proposed, since the approach was originally designed for solving micro level problems in schools. The impasse described reaches beyond schools into the politics of curriculum and the structures that shape schooling. PBM provides no tools for working at these levels. In fact PBM rejects macro social theories as unhelpful in solving educational problems. The focus of this chapter is a critical review PBM and Critical Problem-Based Methodology (CPBM) in response to this challenge.

8.1.2 Social or educational issue?

In beginning, one particular issue needs to be clarified. It has been assumed throughout this work that the issue of the environment is an educational problem and amendable to educational research. This assumption requires scrutiny.

It could be argued, and indeed Gough (1997) touches on this issue, that the environment crisis is a social problem and that structuring it as an educational one is

not only inappropriate, but also dangerous. This is because it deflects attention from the socio-political stage where many of the issues should be confronted. This criticism is not clearly expressed in the environmental education literature where it is assumed that the environment is an education issue. Reading away from specifically environmental education literature, one finds for example that in the Bruntland Report, *Our Common Future* (WCED, 1987) there is only incidental reference to education. Sustainable development is seen there as an economic issue. Suzuki and Dressell (1999) also rarely mention education. They seem to see environmentalism as a struggle (by adults) at the level of individual and community over specific issues, and they are not especially macro-political in their approach.

Having raised this issue however, I cannot provide a definite answer to it. I would reject the proposition that the environment crisis should not be part of education for that would be to say education should not review the world impartially and thus be deliberately blind. Yet I could easily argue the case that education is not impartial and is deliberately blind to social and environmental justice. I would none the less conclude that this should not be the case, and that education should confront learners with the complexities of our global situation. There is a danger that such education approaches the issues in a partial manner that is evident in the widespread failure to confront social and political issues in environmental education. There is a further dimension to this danger in that it has been widely argued that schools reproduce society as it is, and therefore to seek to transform society through an agency that is primarily reproductive, courts trivialisation or co-option of the transformative agenda. Annette Gough reports that since its earliest days, the notion that environmental education has a place in schools as an agent of social and educational change has been contentious. She writes:

For example, at the Australian UNESCO seminar, Stenhouse (1977b, p. 313) argued that; "the strongest part of the discussion on environmental education has concerned a re-assessment of some of the things schools stand for". He saw the introduction of community action as part of the school program as "threatening some of the assumptions of the school". Yet he also believed that "environmental education can become central to the climate of education" (Stenhouse, 1977b, p. 314). However most of the other seminar participants concentrated on agreeing that changes were needed in society rather than focusing on the educational process.

(Gough, 1997, p. 16)

While this debate remains unresolved, it is no longer obvious in recent literature where there is an uncritical acceptance of schools as sites of environmental education activity.

There is little acknowledgment of schools as serving socialising or reproductive roles. Stenhouse (1977b), however, believed education could be a vehicle for social change and perhaps “belief” is the key word.

White (1992), within a different debate, considers that rather than shaping society, schools are shaped by it. In discussing the impact of research on education, he argues that it has been small, and that most of the significant changes in education have been brought about by social events and movements. He cites the Russian success with Sputnik and the Feminist movement as obvious examples. The linking of environmental problems with educational solutions through environmental education is now a statement of faith, but such faith is seen beyond environmental education. As Postman and Weingartner put it in the opening of their celebrated book claiming that education is a subversive activity:

This book was written because we are serious, dedicated professional educators, which means that we are simple, romantic men who risk contributing to the mental-health problem by maintaining a belief in the improvability of the human condition through education.

(Postman & Weingartner, 1969, p. xiii)

Certainly the educators who developed the Belgrade Charter (UNESCO-UNEP, 1976) saw education as central to their efforts as, supposedly, did the members of those governments that ratified the Tbilisi declaration. It is also true that the transformation of social problems to educational ones is not limited to the 1970s or to environmental issues, and is now an almost routine occurrence. The New Zealand Curriculum Framework (Ministry of Education 1993a), for example, identifies a range of social issues, including drug use, suicide and youth pregnancy, as educational challenges.

The acceptance then of environmental issues as an educational challenge must be viewed as an article of faith, but one that should be constantly reviewed. I would assert that if this review is conducted without regard to the sociological arguments regarding schools as sites of hegemonic social reproduction, the environmental education endeavour stands in grave risk of being co-opted and becoming part of the problem rather than part of the answer as Huckle (1991) has suggested. This conclusion strongly influences the development of my thesis and informs the methodological critique that follows.

8.1.3 Methodology

The methodological approaches taken in pursuing this thesis are similarly, not above critique. The methodological starting point, Problem-Based Methodology has been subjected to criticism and Robinson (1993) has defended it from this critique. The first issue of critique is that PBM is narrow and instrumental, “mere problem-solving”. Robinson acknowledges that this can be the case but insists it need not be. She directs attention to the self-conscious evaluation of existing and alternative constraint structures that form part of the description of any problem. She highlights the four criteria used to evaluate solutions: explanatory accuracy, effectiveness, coherence and improvability. These, she argues, prevent such narrowness by exposing PBM to immediate and ongoing scrutiny.

In responding to the related criticism that a focus on practitioner theories of action ignores the wider context in which the problem is embedded, Robinson emphasises that problem solving cannot occur, except by coercion, without practitioner involvement. She is critical of research that arises from other theoretical positions as likely to be ineffectual. She doesn't consider that PBM necessarily neglects the wider context. Implied throughout her discussion however, is the view that double-loop learning that questions underlying assumptions is not commonly undertaken. She also specifically focuses on small-scale micro problems.

Robinson broaches this issue of scale in responding to the final criticism that PBM is limited to small-scale applications and often overlooks structural influences. Her argument supports small-scale problem solving considering them to be cognitively manageable, in contrast with vague large scale theorising. She does not consider modest problems necessarily imply first loop rather than double loop solutions, considering that accurate problem description can include wider contextual issues.

My reaction to these criticisms is that they are sound and borne out in the examples Robinson (1993) uses to illustrate PBM in her text. Her responses to these criticisms are not altogether convincing.

Within the scope of the problem *impasse* under consideration here, Critical PBM that incorporates third-loop learning that acknowledges macro level forces shaping school structures, is more resistant to these criticisms. Under this third-loop requirement, CPBM is neither narrow nor instrumental because the approach deliberately examines wider social context and causality. It has the capacity to support double loop analysis of school curricula and organisation as well as third-loop review of mechanisms and

social values beyond the school. At the same time, it has the potential to assist real and practicable steps forward in a range of situations in response to complex problems at first loop level.

Despite the criticisms (which have been addressed by modifying the approach), PBM does provide a number of particularly useful attributes which are suited to this research and which are refined in the Critical PBM approach adopted. In the first instance the evaluation criterion of 'improvability' acknowledges that solution theories are tentative. PBM also draws on strategies from a number of research traditions and the detail of the way Robinson (1993) sees PBM overlapping with the three traditional approaches, positivism, interpretivism, and critical theory suggests all can be drawn on. A word of caution is needed though. There is confusion here because Robinson does not see the three approaches as arising in distinct research paradigms. Care is needed in distinguishing between methods and the world-views by which they are informed, as Robottom and Hart (1993) have explained. This issue of world-view can be addressed within CPBM. The research approach taken here thus differs from PBM in a number of significant ways and these will continue to be flagged by referring to *Critical Problem-Based Methodology, CPBM*.

8.1.4 Methods

Under the umbrella of Critical Problem Based-Methodology the nature of ethnographic research and of the interview as the approach to gathering field data needs to be considered.

When ethnography is considered as a stand-alone approach it has a number of weaknesses that were discussed in general terms when considering the interpretive tradition in Chapter Four. It is a theme repeated by Goodson (1999), that ethnography has been criticised for failing to take account of contextual factors in the lives of its research subjects. It is argued in response, following the work of Peter Woods (particularly Woods, 1996), that this need not be the case. Well-conducted ethnographic research is capable of detecting contextual and structural influences on teachers' lives. (This criticism was levelled at PBM and was rebuffed with a similar argument). It is inherent in an ethnographic approach that even when such factors do surface, the approach stops at description of events and has no point of leverage for making a difference. PBM claims to be able to break from this hermeneutic circle through its reference to 'effectiveness' and 'improvability' and the notion that

normative claims can be reviewed and judged in the same way as other knowledge claims, since all are theory and values laden.

The Critical PBM approach taken here has the potential to address the manifestations of wider social forces in educational problems in a more robust way by requiring first, second and third-loop reflection and learning. In doing so, it resolves the issues of narrowness in both PBM and in ethnography used within it as a data-gathering tool.

The inability of ethnography by itself to act as a vehicle for change is addressed in the way that the goals of environmental education contain an imperative for change. Once ethnographic description is complete, a critical analysis that looks to initiate improvement and change is required. The 'goals' for environmental education provide a framework for such reflection and an escape from the "social construction of subjectivities" at the micro level discussed by Goodson (1999, p. 129). CPBM also provides the opportunity to take the wider rather than the narrower view in responding to the issues posed for schools by environmental education. It assumes however, that the goals for environmental education have some legitimacy within the educational community and are agreed rather than imposed. This too is a vexed issue addressed later in this thesis.

8.1.5 Ethnographic methods within modified PBM

The ethnographic case studies completed within this research call for a close examination at a specific rather than theoretical level. Other ethnographic studies of teachers' work use a wider set of approaches than have been used here. Troman (1999), for example reviews documents, observes conversations, meetings and staff-room interactions, attends in-service days and even relieves in class, as well as conducting traditional interviews. In comparison, the interview approach taken here seems very conservative and limited. This narrow base could be a concern.

Troman's study followed a single teacher for 18 months. It sought to understand the impact of school reforms on the life of the teacher and was in a sense neutral or supportive. The fact that teachers' workloads had been increased and demands on them intensified by the changes under consideration in the study, might have disposed teachers positively toward the researcher, and certainly the fact that he stood in as a classroom teacher at times speaks strongly of acceptance of him by the school staff.

In contrast, in my own study, I wished to observe the natural life of the school in a different kind of way to see what would occur if the teachers were left undisturbed in

their schools. The interviews were in a sense a snap shot of their lives at intervals that were sufficiently widely spaced as not to be interventions. Had different results emerged, a wider range of techniques might have been considered. If, for example, teachers had reported that the environment was the driving force behind their programmes, it would have been logical to look at planning documentation, perhaps to visit classrooms and talk to both staff and students, as has been done on other such occasions (Chapman, 2000), but this was not the case.

As the study progressed into Phase Two and considered the work done by experienced teachers subsequent to the Ministry Workshops in 2001, my view of much of what was being done became quite pessimistic. I felt in a number of cases that teachers had come to the workshops and asked for help under false pretences for there seemed little commitment to trial the topics they had planned as expected and agreed. This is not a conducive frame of mind in which to pursue further information from volunteers. Troman (1999) describes his study in terms of a progressive focusing and of spiralling insights. In contrast, my research spiralled outwards from the teacher to the school and beyond in an attempt to understand why, in the majority of cases, very little of a positive nature had occurred in environmental education, even when funding had been provided to support it. In summary, deeper enquiry would have been difficult to pursue in a spirit of good will because I would have been asking why things had not happened in a pointed way. This is, by implication judgemental and would have stretched the ethnographic envelope. Regardless of that, being inherently critical of school organisational structures, given that in many cases these seemed to restrain teachers, could have placed the research participants at potential risk had such a line been pursued. Whatever the limitations of the data gathering exercise, they were, in a sense, imposed by the findings of the work and the contexts of the schools, rather than by deliberate structuring.

8.1.6 The value of the data

Interview material itself needs to be treated cautiously. Berg (2001) discusses the view of the interview as a dramatic performance in which the participants play roles of a perhaps changing nature, and attributes this view to role theory. This suggests that interview data may be suspect.

In describing ethnographic work in general, Berg (*ibid*) also identifies the difficulties inherent in interpreting differing discursive practices used by researchers and participants, but in making this point refers to studies of minority groups in society. In this study, all participants, like myself, are teachers. Moore (1999, p. 143), in post-

modern vein, suggests that interviews can be seen as text at the intersection of various discursive practices that can be read by others. The question here then is how can the data be approached with these potential difficulties in mind?

The 'reading' task is considered in this research in two ways. Firstly, while divergent discursive practice has an influence on interpretation of data that should not be underestimated, the researcher, as a teacher, is here working with other teachers who are volunteers, who have worked with the researcher in classes and workshops, and who in general share a professional language. As well, their volunteer status indicates a willingness to share their experience so the research is marked by a commitment to mutual understanding. The second factor is that the difficulty of interpreting the data is acknowledged in that the data has been approached with caution. Patterns are sought, similarities and differences identified, not just in what people say but in the meaning that it might have in its context. Few conclusions are drawn from the data and those tend to be in the form of systematised description (e.g. the types of initiatives described or the characteristics that seem to accompany sound practice) rather than any attributions of cause to individual behaviour.

In support of the process used here, Corson (1999) considers that human accounts and reasons are the basic evidence of social science through which peoples beliefs, values and interests can be seen. They also provide evidence of second order beliefs about these (what people think about their beliefs), and are the starting point for understanding the nature of structural influences and considering action to preserve or replace these. Corson draws on the work of both Bhaskar and Wittgestein, describing people participating in language games within "fairly closed linguistic circles" within disciplines or ideologies (Corson 1999, p. 75). This suggests there should be less rather than more problems in interpreting the data in this situation.

In the interviews, teachers' views of themselves and their schools are being expressed. Seen from within PBM, these are espoused theories. Since in the majority of cases, teachers report not enacting environmental education programmes, there is a very limited opportunity or purpose to conducting empirical observations to evaluate their theories-in-action. The teachers' self-reports are then the data, as Corson suggests, for understanding their contexts through the ways they see themselves in them.

Overall, while it is not claimed that the study is above critique, the data 'feels' internally consistent. It is clear that schools have many commonalities but also significant and credible differences. The data contributes to a general picture that is not at odds with reports in the literature and thus believable. Teachers shared their stories willingly. Within the study the methods used have been partly prescribed by

the results emerging from a study in that the lack of activity meant little opportunity was available for more detailed scrutiny of events. The developing research approach was also shaped by the situations of the participants, as teachers within schooling situations that were typified by the tension generated by competitive social conditions.

8.1.7 Summarising the approach

The Critical Problem-Based Methodological approach deflects the substantive criticisms levelled at PBM and at ethnographic case studies by taking a broader approach involving three loops of reflection. Conclusions are drawn hesitantly and with the desire for further evidence always to the fore. It is hoped that this combination of approaches, that seeks the widest base of data possible and interprets it with caution, will help resolve the difficulties inherent in processing contextually derived ethnographic interview material. What needs to be kept in mind however, is that the data gathering and interpretation conducted thus far constitute only the first part of the problem-based approach described in Figure 4.1 in that they seek to describe and perhaps begin to structure the problem, to use Robinson's (1993) terms. That description is as yet incomplete however. The composite CPBM approach draws on sociological and curriculum theory to enrich its description of schooling as well as drawing on the subjectivities of teachers.

What has not been addressed at this stage is a tension relating to the nature of different knowledge claims and the underlying ontological issues. Robottom and Hart (1993) make the point that methods are flexible but that it is the underlying ideologies and purposes that shape the methodologies of research. Gough (1997) has also alluded to these tensions. In short, the discussion about methods and methodological approaches hinges on a discussion of what counts as knowledge, and the nature of the reality that the knowledge is intended to describe. In developing a composite methodology these issues are extremely important. Robinson (1993) has not addressed these epistemological and ontological tensions in making her claim that PBM spans research traditions. This research now hangs on the ability to theorise a unifying ontology that coherently links its component parts within CPBM. This is conducted in the following section.

8.2: THEORISING THE RESEARCH

8.2.1 Introduction

Research methodology in the domain of the social sciences is a landscape of daunting complexity. This section begins the process of navigating that complex terrain and in doing so, clarifying the theoretical positions that underpin this research. The navigational metaphor seems appropriate for there are areas of contention in which a range of paths is possible. The clarification of the view of reality and of the nature of knowledge which underpin this (or any other) research and which are perhaps its mainspring, simplifies the discussion of many subsequent issues discussed in the following chapters. This applies in particular to the issues of methods and methodological approaches discussed so far. This initial discussion will be expanded later in this chapter in order to consider the inter-relationships between methodological and ontological issues and to link these to the methodological debates considered in earlier sections. It will include an analysis of Critical Problem Based Methodology and its applicability to this study.

The work of this section then is crucial to the research. The first question usually asked in research addresses the issue of what one is seeking to find out: What is the research question? A little thought about this leads to a further issue about what one counts as knowledge, a question that is difficult to respond to without some consideration of the nature of the reality we are attempting to find out about. Reflecting on these issues, I have come to consider, and Robottom and Hart (1993) argue this position, that one's view of the world underpins one's view of knowledge and both of these form the theoretical perspective through which research is shaped. This is coherent with the interactive, spiralling, model of research suggested by Berg (2001) and described earlier.

There is a certain 'chicken and egg' dimension to this discussion however. On one hand it seems logical to deal with the issues of the nature of reality and the nature of knowledge first in order that the discussions of methodological approach can be conducted unambiguously. Such organisation would be imposed on this work with the gift of hindsight though, because at the start of the process these were not explicit and the conceptualisation of the research was neither linear nor distinct, but evolving. It was catalysed by the discouraging results arising from the data and the double imperative to explain what was happening in schools and to re-conceptualise the methodological approach that was emerging in response to the data. A significant feature of this was the observation that the teachers responded to their educational

contexts in their own ways and that these were often difficult to unpack. This raised the basic question that is posed in this section, “what counts as knowledge?” The clarification of this is difficult without a preliminary understanding of the world-view, or ontology underlying one’s approach. Clarifying this allows the epistemological question of the nature of knowledge to be explored and made explicit rather than remaining implicit. With these ontological and epistemological issues clarified, the research project, its methodological approach and the methods chosen can be more honestly analysed. This discussion of the nature of reality now becomes central to the thesis.

8.2.2 Postmodernism

The emergence of postmodernist thinking has created a significant challenge to ways of understanding the nature of reality and knowledge. So much has been said and written on this topic that it cannot be canvassed very fully here but some central issues do need to be identified and addressed. Using the word “postmodernism” is itself problematic however. Oakley, in addressing the positions of post-modernism, post-positivism and post-structuralism concludes:

What the terms describe can be somewhat difficult to get hold of and the differences between them are mostly clear only to their specific advocates.

(Oakley, 2000, p. 40)

This statement is symptomatic of what seems to be a general difficulty encapsulating these ideas that is evident in a number of writings. For example, in critiquing an argument by Blake (1996), Cole, Hill and Rikowski (1997) charge, “we have only a vague idea of what Blake means by post-modernism”. Continuing in this vein, Bailey observes; “The first barrier facing anyone who wishes to consider post-modern thought is the difficulty of identifying what it is” (Bailey, 1999, p. 30). Further, Cole, Hill and Rikowski (1997, p. 187) suggest that postmodernism is a “theoretical virus” that bolsters the destructive forces of capitalism and the ideology and political practices of the radical right. While these comments signal the difficulty of grappling with postmodernism they do not justify its dismissal.

Harker (1993) cites Lyotard’s definition of postmodernity as “incredulity toward meta-narratives” (Lyotard, 1984, xxiv) that constitutes a challenge to traditional ways of knowing. Here I risk criticism by not venturing too deeply into this debate because I wish to get through rather than get lost in it. I wish therefore to recognise the suspicion of meta-narratives, and thus to acknowledge positive aspects of post-modern thought that influence this research. These include the view that much knowledge is socially

constructed. As such, it may have limited applicability beyond the context from which it emerged. Thus, the context needs to be considered. The language and social interactions in which that knowledge was embedded, 'the discursive practices' in which, and with which, it was formed also need to be thoughtfully analysed. Researchers need to be particularly conscious of the theoretical and cultural positions they hold that shape the way they observe and describe the world and limit their capacity for objectivity. These issues need to be clarified by researchers and reflected in the way they conduct and report their research. This must necessarily, if one is cognisant of these issues, be done with caution. Such caution should thus be evident throughout this work, and indeed, all of these issues have been considered previously.

On the other hand however, I wish to reject the notion that there are no overarching, explanations, truths or realities, for this leads to what Holliday (2002, ix) calls "the abyss of cultural relativism" and which Hoffman (1994) describes in similar terms. Rosenau summarises this relativity in saying:

In the end the problem with post-modern social science is that you can say anything you want, but so can anyone else. Some of what will be said will be interesting and fascinating, but some will also be ridiculous and absurd. Post-modernism provides no means to distinguish between the two.

(Rosenau, 1992, p. 137)

Clearly, to assert a position relating to social and environmental justice is to resist the notion that all positions are of equal value. This challenges the values relatively inherent in postmodernism. A way of encapsulating this position is to adapt Lyotard's notion that there are no meta-narratives to, 'we should be cautious about meta-narratives'. This does not then deny the possibility of general explanations but deflects the self-challenging implications of such a denial. Such discussion about the nature of knowledge raises fundamental questions about the reality that such knowledge attempts to describe. It seems difficult, if not intellectually impossible, to proceed with research without considering this issue. I might review the research approaches selected as suitable for the work in hand, but to do so without considering how the research problem itself emerged, and how it was shaped by underlying beliefs about the world, would leave that analysis incomplete. It would fail to consider whether this underlying world-view led to the construction of the project in such a way as to predispose it towards certain methodological approaches. It is thus the purpose of the following section to clarify both the ontology (view of reality) and epistemology (understanding of the nature of knowledge) that unavoidably permeate this work.

8.2.3 Ontology and Epistemology

I take the view that there is an independent reality, which is not simply the result of human consciousness or cognition. The earth, it appears, existed as a material reality before humans emerged on it and will no doubt endure beyond our occupation of its surface. Poverty, wealth and extinction are real too.

To reject, on one hand, the view that all knowledge is socially constructed, but to accept on the other that knowledge is embedded in time, place and culture, is a middle position that is encapsulated by Critical Realism. In examining my own understanding of the nature of reality and ways of knowing implicit in this position I find there is a close fit with the critical realist position. I wish however to expand on Bhaskar's work on critical realism and to develop a modified vocabulary in adapting some of his ideas in a way that is helpful in developing a theory of knowledge.

It is very difficult to separate ontological issues regarding the nature of reality from epistemological ones concerning the nature of knowledge and how we know. The only way it seems we can know is through our senses and through rational consideration of what our senses tell us. The Popperian view (Swann, 1999), has it that knowledge proceeds through empirical testing and reduction of error. Corson (1999) links Popper's ideas with Bhaskar's critical realism, suggesting the latter extends and develops the former. Swann (1999) describes the underlying Popperian position as a modern rationalist empiricist epistemology that accepts that our senses do not necessarily apprehend reality directly and that rational consideration is coloured by existing predispositions and knowledge. In a useful addition to these ideas, Moon (1995) describes the position taken in his work as "modified objectivity", in which objectivity is striven for but perhaps never achieved. I have used the term "self conscious" rather than objective in this thesis and feel comfortable in matching this with Moon's view. While slightly pre-empting the ontological discussion of Bhaskar's critical realism, to which I have signalled sympathy, I emphasise Corson's (1999, p. 71) point in describing critical realism as "ontologically bold but epistemologically cautious".

I would like to draw together these ideas and define for the purpose of this thesis, an 'interactive epistemology' which is built on Swann's (1999) notion of a modern empiricism and rationalism, that accepts modified objectivity (Moon, 1995) and which is cautious after Corson (1999). This interactive epistemology proposes that we attempt to understand reality through our senses, rationally reviewing the processes we undertake, striving for objectivity (being self conscious) but understanding that both are shaped, and limited by our prior understandings, theories, cultural conditioning

and values. Much of this is outside rational consideration. Thus, knowledge statements are made cautiously and proceed in complex interaction with further empirical and rational weighing and testing in the 'real' world, along with weighing against normative values positions.

Making mention of "the real" introduces a more detailed ontological discussion on the nature of reality. Plant (2001) discusses Bhaskar's (1975) ideas of an "ontological stratification" consisting of three domains; the real, the actual and the empirical. These are encapsulated below.

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	Π		
Events	Π	Π	
Experiences	Π	Π	Π

(From Bhaskar, 1975, p. 56)

Figure 8.1 Domains of reality

The marked boxes signal that 'mechanisms and causes' of the 'events' that we 'experience' reside in the real domain, or in other words, the things we experience are manifestations of reality. Our experiences arise from events in the actual domain. Our experience of the world through our senses may be responses to real domain mechanisms, actual domain events or to other empirical domain experiences. It is difficult for us to tell. This abstraction is illuminated by a concrete example.

Acknowledging the interrelationships of these domains in Bhaskar's theory, Plant (2001) describes a natural phenomenon as an example of this interrelationship.

The Moon's gravitational pull is a causal power that cannot be observed directly but becomes manifest in the domain of the actual as a 'bulge' in the Earth's oceans. For example, this may be experienced in the domain of the empirical reality of everyday life as the ebb and flow of the tide on a beach...However it is possible for events to occur without being experienced in the actual domain and becoming noticeable as sense experience.

(Plant, 2001, p. 4)

Examples from the physical sciences tend to be conceptually difficult but ontologically simple however. At this point I wish to adapt Bhaskar's theory by proposing, as I think

Plant implies in this quote, that all three domains are both real and actual. Thus, I intend to describe the three domains as empirical reality, material reality (the actual) and deep reality (the real). I then wish to explore these ideas by considering a more difficult example, drawing on Suzuki and Dressell (1999) in doing so. They describe a biological situation in the salmon fisheries of North America. As animals that harvest the salmon carry the bodies into the streamside hinterland, they transfer the nutrients to a terrestrial environment. Over countless centuries this has enriched the ecosystem and in turn changed the biotic community that it sustains. The behaviour of living things has thus altered the material reality of the ecosystem. There is a feedback loop operating here that is not seen in the example of the tides.

If we think about the human social world, things are even more complex. Take the development of the internal combustion engine. Over a period of about a century the proliferation of this device and the accompanying consumption of fuel has changed the chemical balance of the atmosphere and begun the process of global warming. While the basic (deep reality) laws of physics and chemistry are unchanged, a series of events is in train that goes very close to changing the nature of deep reality for the natural world. It has certainly changed the other two levels of reality.

Within the social world however, the quest to maintain economic relations that depend on cheap energy is a driving force behind much human behaviour, causing war and conflict and contributing to the growing imbalance between rich and poor as well as driving global warming. Part of this is the cumulative impact of individual actions in driving cars and using plastic products. Thus, I suggest that there is a separate social reality in which the simple cause relationships described in Fig 8.1 do not hold. Social reality is complex and reflexively inter-related. This is an essential point in relation to education and the faith we place in it. That faith is that by educating individuals we also contribute to change in the deeper levels of social reality.

Returning to Plant's example of the tides, empirically we might experience the tidal movement up and down a beach. This does not capture the deeper levels of reality. Wider empirical observation over time and space allows humans to grasp what I will call the material reality of the tidal bulge. Wider theorising, modelling, further observation and testing hypotheses, allows arrival at an understanding (tentatively held) of the deep reality (Bhaskar's real domain) of multiple gravitational influences that cause the tides. As mentioned, all are actual and real. Further, current understandings may be incomplete. As Popper puts it;

There is a reality behind the world as it appears to us, possibly a many layered reality, of which appearances are the outermost layers and what the

great scientist does is boldly to guess, daringly to conjecture, what these inner realities are like.

(Popper 1985, P. 122, cited in Swann 1999, p. 12)

In this example, gravitation causes the tidal bulge. The bulge moves around the earth as the earth rotates with the result that tidal motion on the shore can be seen. There is a linear causality here. The tide on the beach does not influence gravity.

Of course there may be other possible explanations for the example used here. The tides may be caused by the earth breathing, as an alternative construction of meaning might have it. A postmodernist approach would, as Rosenau's earlier quote contends, contain no criterion for distinguishing between these. A more 'realist' approach however provides apparatus for weighing such contested claims. This ability to weigh competing claims must be treated with great caution. This caution includes clarifying the assumptions buried in both claims and in the adjudicating procedure. It also requires carefully considering the interests of power that might be behind them. In particular, sets of conflicting cultural values that lie behind claims may also involve relations of power. Values also influence the uses to which knowledge may be put or the purposes it might serve as well as determining its substance. Thus understandings about the natural world are very difficult to separate from understandings of human society that shape the construction of knowledge of the natural world, knowledge that is very often portrayed as objective and acultural.

Critical realism then, proposes a layered reality, Deep Reality, Material Reality, Empirical Reality, in which the causes and mechanisms in deep reality have effects (material reality) that are experienced empirically by people. Those experiences are mediated through culture and influence the way we view and construct material reality. This in turn shapes the way we understand deep reality.

The same issues apply in the social world but are more complex. As an example of 'cultural' mediation of social reality, a dominant group in society will see schooling as fair and providing equal opportunity, while an ethnic minority may see it as culturally biased and colonial. This 'cultured' nature of understanding is perhaps what leads postmodernists to conclude that all reality is socially constructed. This might be seen as taking the easy way out however. Returning to Bhaskar, Corson, in a wry comment, reports that in a "long and closely argued passage" of over one hundred pages Bhaskar (1986) shows that social phenomena are conditioned by, dependent on and manifest in natural phenomena but are causally, ontologically and epistemologically irreducible to natural phenomena (Corson 1999, p. 72). In short, while they are intimately inter-related, social reality, though dependent on the natural world, is distinct from it. The

social world is much more difficult to understand because human activity at the empirical level impacts upon and changes material and deep social reality.

For the purposes of this thesis three significant things need to emerge from this complex area of scholarship. Firstly, how do these ideas about reality and knowledge relate to the environment and environmental education? Secondly, how, using these ideas, social reality may be grasped in terms of this critical realist ontology? Finally, how the methods used and methodological approaches informing this research might be seen as both appropriate to and consistent with the views of reality, and of knowledge taken and with the purposes of the work?

8.3 APPLYING CRITICAL REALISM

8.3.1 The environment as a social construct

In discussing the environment, it is clear that the social construction of meaning must emerge as a strong aspect of that discussion, for people within different cultures will almost certainly understand the concept differently. Within many cultures there will also be differences between individual understandings, so in that sense the environment is socially constructed; we understand it and give it meaning through culture, language and values, that is, socially. To a degree these constructions of meaning are relative. They exist in the empirical domain but are shaped by the deeper levels of reality.

The environment is also socially constructed in that its current shape is determined by human decisions to exploit or preserve it, and human power is such that there are few parts of the planet where humanity does not have sufficient agency to do this. I have not defined the environment here. Terms such as “natural” ‘built’, and “social environment” have been used in this regard (see for example Fien, 1988) and attention was drawn to similar defining references within the Tbilisi Declaration in Chapter Two. However, despite the long history of a dualistic view of humanity as separate from the natural environment, this dualism cannot be sustained intellectually. Human life, like all other life, depends on complex biological interactions but also on ‘natural’ resources of minerals, plants, air and water. In turn the environment is the repository of our by-products and waste so that any understanding of the environment must be linked to an understanding of human society for two important reasons. The first reason is, that the environment is understood ‘socially’, that is, mediated by values and culture. This occurs through social and economic practice, theories and explanations,

and through language. Secondly however, socially 'constructed' though it may be, human activity impacts on the natural environment in real ways that can sometimes be catastrophic. Extinctions, climate change, desertification and other problems are real. Thus, not only is the environment understood socially but it is also shaped in a very real way by human social activity. It is thus socially constructed in several ways. In other words, human activity at all levels impacts upon and changes realities in the natural world at the actual and empirical levels. Human activity must thus be considered as part of the deep reality of mechanism and cause in understanding the natural world. Natural laws are, in return, part of the deep social reality and the natural world also shapes material social and empirical social reality. The weather is a good example, shaping our daily experience of the world, but also our agriculture, housing and culture. Thus humanity is inextricably interdependent with the environment, however it is defined. Grasping the interdependence and altering the damaging nature of the relationship between humanity and the world, is however, vastly more difficult than recognising the existence of those relationships.

8.3.2 Social reality

Bhaskar's (1975) ontological stratification of reality into three domains that I have called deep reality, material reality and empirical reality, does not capture the complexity of the social world however. Understanding how these ideas relate to the social world is crucial in clarifying what this research is trying to do and how it attempts to do that for, as Robinson (1993) argues, the first step in solving any problem is an accurate explanation.

A brief description of education that is analogous to Plant's (2001) description of the tides used earlier is helpful here in applying critical realism to this thesis. Schools could be seen as part of the material social reality of education. Other aspects of material reality might include the curriculum, the Education Act, the Education Review Office and other observable educational structures such as Parliament and other laws. Within these structural frames, teachers experience the multitude of social interactions that constitute their empirical social reality, grasping to varying degrees the way the material social reality shapes their experiences. (Teachers interviewed in Phase One of this research did not link their increased workload with impending ERO visits.) Collectively however, teachers shape the school to some degree and determine to varying degrees the nature of their own empirical reality. The innovative teachers had influence at this level. Both of these realities are shaped at the same time by deep social realities. Society's demand for an adequately 'educated' work force and citizenry, for example, shape both schools and the curriculum in significant ways. This imperative is

clearly expressed in the New Zealand Curriculum Framework (Ministry of Education, 1993a) and demonstrates this inter-relationship clearly.

As well as their ability to shape their material social reality within schools to some degree, teachers may be active in professional organisations that influence educational structures. Union activity or other political action by teachers may begin to impact on deeper social realities. Within social reality the levels are mutually interactive in a complex way. This interactive nature of social reality is central to understanding how the research process attempts to understand teachers' experiences. With reference to the diagram below, Figure 8.2, the portion inside the dashed line boundary attempts to capture the nature of social reality.

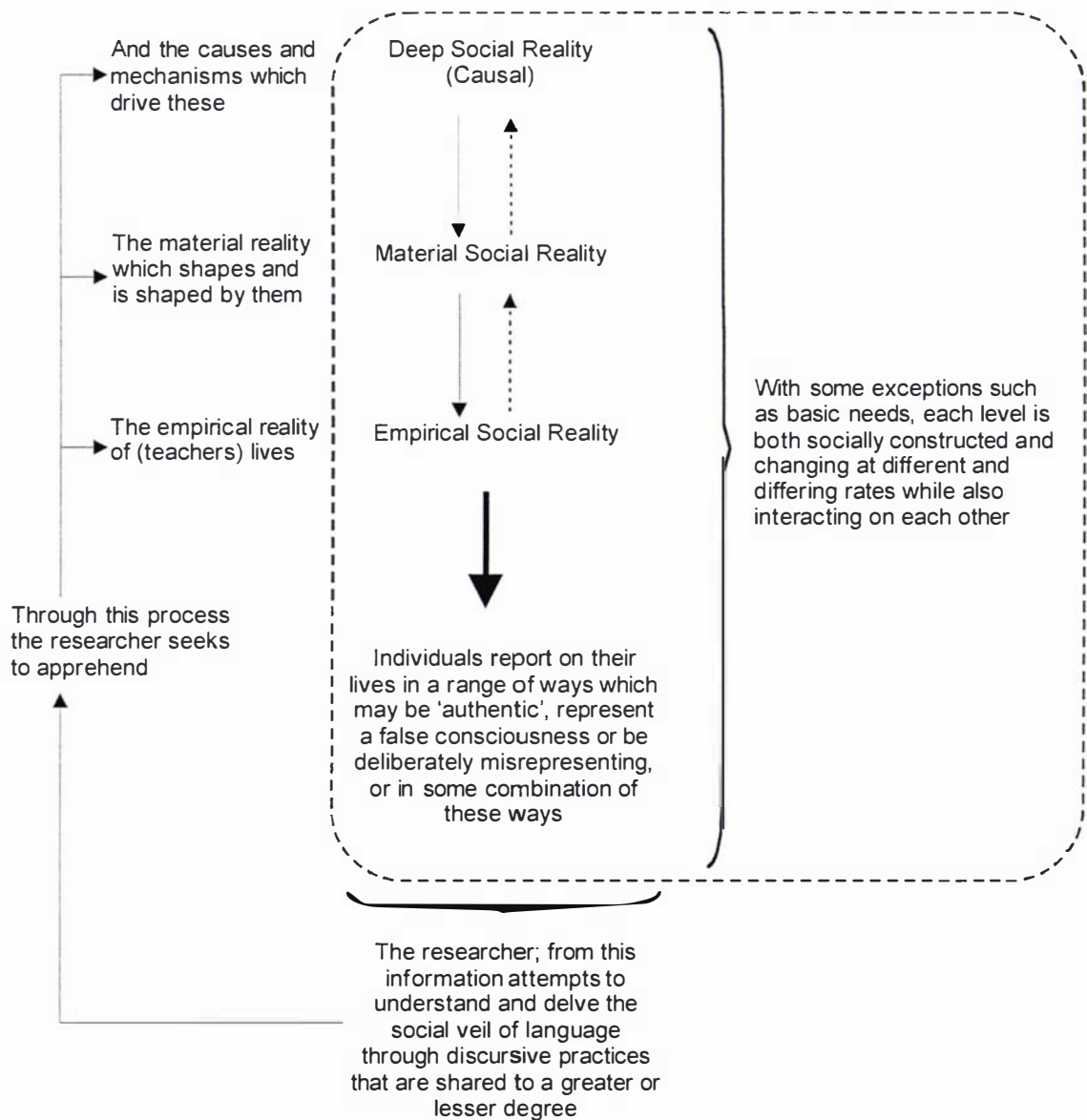


Figure 8.2 The role of the researcher in critical realism

The sections outside this boundary depict the researcher's attempts to understand the particular nature of those social realities in order to attempt to change them in the solution of environmental education problems. While teachers have some agency in shaping the empirical and even the material reality of their working lives, this research shows that this agency is variable and usually far from complete because other causal forces are also at work on and through the 'material' structures of education. These are complex though. The teacher/parent evening or chance conversations with parents at a sports fixture are empirical experiences. The content of those interactions may be seen as driven by deeper 'forces' that shape the ways participants view the world.

The school review is a material reality but involves empirical interactions with the review team and both of these will be shaped by the role the review performs. This role is driven by/in deep reality. All of these can be part of the pressure and inertia that shape and constrain teachers' practise. There is a belief however, that education influences the way we think and interact. Thus it has the potential to alter the social balance that shapes deep reality to some degree. This is, as has been mentioned, to a large extent a matter of faith.

Parts of the argument above may be seen as naïve however, because there is another set of debates that will be reviewed in Chapter Nine that have it that schools also reproduce the social relations of production in a way that is hegemonic. These hegemonic forces are also part of the deep reality of the social world. Recent changes in schooling and in New Zealand society in general, described in Chapter Three, represent a change in the mechanisms and forces that underpin education and are driven by political shifts and perhaps by deep structural changes in the global economy. These have resulted in some quite revolutionary changes in schooling and society that have profoundly altered the empirical social reality of teachers' lives (Marshall & Ball, 1999; Jeffery, 1999). These changes can be seen as socially constructed through the political process and demonstrate how that construction can alter quite quickly. In contrast however some aspects of education, including the basic organisational structures and the phenomenon of children at desks in classrooms, have changed little in over 100 years.

Seen against the technological and social changes wrought between 1900 and 2000 by way of comparison, this conservatism is difficult to believe. Thus we not only see change that alters in its pace but also differing rates of change in different aspects of education occurring concurrently. These differences highlight the point that material and empirical realities are shaped by deep forces but also by a constant and complex

social interplay between groups, citizens in general, and by shifting social and political nuances that are obscure and subtle.

8.3.3 Bringing about change

Environmentalists and environmental educators are part of this complexity, seeking to shift the social balance toward greater environmental and social justice. This, they claim, is an activity that is in the wider good of humanity and the planet in general. To bring about such change is profoundly more difficult if social realities cannot be, or are poorly understood. A clear understanding of the nature of social reality is thus an essential starting point and crucial to the work of this thesis.

In response to all this, two different sets of methods have been applied to the purpose of this research as described in previous chapters. On one hand, discussions with teachers have been pursued in a manner that might be compared to observing the tide from the beach, or a number of beaches, capturing the way events are seen and understood by observers on site. On the other hand a two-pronged review of literature seeks to consider firstly how observers on other beaches at other times have viewed events (curriculum theory) and secondly, how a range of theorists have viewed the situation (sociology), in their attempts to understand the causes. Thus, these approaches attempt to grapple with the layered notion of reality evident in a critical realist approach. The methodological analysis and review of these approaches is undertaken in the following sections.

8.4 REWEIGHING THE METHODOLOGY

The critical realist ontology, coupled with a cautious approach to knowledge fits comfortably with many of the ideas and concepts that have so far been introduced in this thesis in several significant ways. It captures the middle ground between realism and relativism long occupied by the researcher and undoubtedly evident in the development of this research, and does so in a robust and compelling way. It is compelling for the reason that the three domains of reality match very closely with the three levels of reflection proposed in the Critical Problem-Based Methodology developed here. Empirical social reality is examined by first-loop reflection and learning at the micro level of daily practice in schools. Material social reality is observed in the statutory tasks delegated to schools by the State, such as the

curriculum, the education review process and the educational market in which schools operate. Second-loop learning addresses these. Finally, deep social reality, the social forces and mechanisms that shape those structures, is reviewed in the third-loop of reflection and learning proposed. These forces include government and the ephemeral social groupings that influence government policy, as well as 'society' in the sense that some collective summary of social mood through the ballot box determines who holds political power.

As well as this obvious link there are other minor but powerful congruencies that contribute to an optimism that this approach may provide real ways forward. The Tbilisi Declaration mentions the need for new patterns of behaviour by individuals, groups and society as a whole towards the environment. These could be seen as matching both the three levels of reflection proposed in CPBM and the levels of reality posited by critical realism. In a parallel way, Habermas' (1990) three validity claims can be linked with the same ideas. His claims to truth, claims to rightness, and to truthfulness residing in the objective world, in the shared social world, and in the individual subjective world, as described in Chapter Four also fit with the levels of critical realism in the social world I have adapted from Bhaskar's work.

The intentions here also seem largely congruent with Habermas' project. This calls for an expanded communication that escapes from the instrumental rationality that he proposes constrains human consciousness. This instrumental rationality is certainly reflected in the structuring of schools and the curriculum that have been described in this research. The three levels of reflection also allow knowledge statements to be analysed at different levels of applicability, allowing for a review of these statements in a way that is purposeful and constructive. For example, the macro social theories rejected by Robinson (1993) can be less threateningly reviewed by positioning them in a third-loop analysis and subsequently exploring the implications they might have at other levels. This in turn helps CPBM, to escape from the charge of being atheoretical. The Tbilisi Declaration (as an example of a social theory) can be comfortably analysed for its implications for school practice, at educational organisation, or at government policy levels, that is, using three loops of reflection and learning. Doing so is cognitively manageable, a criterion which influenced Robinson's (1993) decision to reduce her analysis to the micro level.

There are further positive implications. PBM puts faith in researchers engaging with practitioners in critical dialogue in order to resolve the tensions between the espoused and in-use theories of practitioners. This privileges the perceptions of the researcher and does not escape the uneven power relations that have often been a problem in research, including action research (Posch, 2003). The alternative notion, that all

knowledge arises from within the micro context of practitioner expertise, is also problematic since social change is unlikely to arise at a micro level, within material structures shaped by the deep reality that caused the problem.

The point is made by Robottom and Hart (1993, p. 53) that critical action research consistent with environmental education should “value practitioner derived knowledge as opposed to expert derived knowledge”, however, some caution is needed here. Print (1993), in discussing school based ‘dynamic’ models of curriculum development, sounds a warning in this regard. He points out the danger that these can become exercises in shared ignorance. A balance needs to be struck here and this thesis is yet to position its work in relation to such a balance. The composite approach developed in CPBM however, allows for a widened canvassing of sources that might contribute to accurate problem description at any of the three levels and thus escapes some of the narrowness that was a criticism of PBM. These can be reviewed through a more generalised critical reflection process that does not limit discussion to the practitioners’ current views, that does not privilege the researcher as the mediator in critical dialogue, and is in general, more open, and potentially more plural in approach. This may assist those involved in problem solving to strike their own point of balance, but this issue will be addressed in terms of this research in a later chapter.

Critical realism has been positioned within the socially critical approach to educational research (Robottom and Hart, 1993) and as modelled in CPBM should be self-critical as well, in line with the cautious epistemology proposed and the criterion of improvability. It needs to be kept in focus however, that theoretically robust as the work developed thus far appears, it is a method of conducting enquiry. It does appear to have the capacity to begin to untangle the impasse described in this thesis by firstly attacking it at three levels. The challenge remains to develop the supporting theoretical analysis to do this, a task undertaken in the next two chapters. It is hoped that this analysis might have applicability beyond a specific context such as New Zealand schools. The solutions that such theorising suggests however, should depend on the context in which they are applied and be context specific. In the next chapter a wider literature is drawn on in order to expand the description of the impasse that has emerged from the empirical realities of teachers canvassed in the research so far. The task of developing new ways of thinking about this environmental education impasse follows in Chapter Ten.

CHAPTER NINE: Taking a wider view

9.1 INTRODUCTION

Throughout the work of this thesis there is a prevailing sense that there is something missing from the field of environmental education. I have quoted Fien's (1993a) reference to the 'curriculum problem', the issue of attempting to develop transformative practice within the reproductive apparatus of schooling. There are other key sources in the literature where this issue is touched on but not explored (Gough, 1997; Robottom & Hart, 1993). There are also direct criticisms of progress in the field from different philosophical perspectives that are difficult to dismiss (Huckle, 1991; Walker, 1995, 1997; Scott & Oulton, 1999; Oulton & Scott, 2000). The foundational documents of the field, and environmental educators in general, treat it as an article of faith that education can address deep-seated social and economic problems such as the environmental crisis. There seems to be little evidence to support that faith. As well as this, Gough (1997) in reviewing some of the curriculum issues that occupied some scholars in the field of environmental education in the 1970s, draws attention to wider sociological issues but notes that these have been given little attention.

These sociological issues seem to haunt the background of environmental educational debate without emerging clearly in it. I would postulate here that in avoiding the sociological debate that attempts to grapple with causal mechanisms that shape schooling, educators are attempting to solve the resulting problems with micro interventions that cannot address the problems and at best only ameliorate the symptoms. This argument is developed in this chapter.

Robinson (1993) alludes directly to these macro level social theories, rejecting them from consideration within her development of Problem-Based Methodology, on the grounds that they have proved unable to contribute to the resolution of real educational problems. Robinson's (1993) approach fails to recognise the incomplete nature of its own theorising and is dismissive, yet these difficult issues have not been resolved. This dismissal could be seen as a clash between radical and liberal ideological positions, as indicated earlier.

Contrary to Robinson, I do not dismiss this area of theory and research. Given the impasse that I have described as facing environmental education, it would seem imprudent to simply ignore alternative ways of viewing the world. I find myself drawn

again to the criticism made earlier of postmodernism: "Reality is hard to grasp, therefore there isn't one". There is something of this in Robinson's criticism of sociological analysis. In her view, macro social theories are difficult to reconcile with current practice, so she ignores them.

It is in response to this issue that I have, within a modified, Critical Problem-Based Methodology, proposed a third-loop of reflection that seeks to grapple with the wider social contexts in which schools and educational problems are embedded. This third-loop learning seeks to apprehend the mechanisms and forces of deep reality that shape schools and the experiences of those within them. Without an understanding of these forces, a description of the problem will always remain incomplete and as a result, the attempt at addressing it must remain of limited worth. I have hinted throughout this thesis, and suggested above, that the failure of environmental educators to undertake this analysis may in part account for failure to make progress in the field, a failure that is lamented in the literature (Oulton & Scott, 2000; Lousley, 1999; Fien, 1997; Walker, 1995, 1997; Huckle, 1991).

In this light then, I intend to briefly examine some key texts within the sociology of education and use these as a window through which to re-examine the work of this thesis and the field of environmental education in general. It is hoped that this re-examination will highlight some possibilities for rethinking what we do that will assist in dismantling the impasse that I have described as facing environmental education practice.

This analysis has some limitations that need to be made clear. Firstly, as I have suggested previously, the three loops of reflection and three levels of reality discussed are acknowledged as ways of attempting to understand the world and are not precise descriptions. The levels discussed are over-lapping and blurred. While some aspects of the world can be partitioned nicely into levels, others cannot.

Further, it is not possible here to explore how deep reality functions in any detail. The task is far too large. This work seeks only to consider education in schools and to consider deep reality in sufficient detail to make progress in dealing with the impasse described in the space available. As implied above, arguing the detailed demarcation of aspects of this commentary in the various levels of reality is avoided unless it is of particular importance. The intention is to enrich descriptive accuracy by reference to these sources but not to get lost in the difficult terrain they canvas. Most important here is the social function fulfilled by schooling.

9.2 SCHOOLS AS SITES OF SOCIAL REPRODUCTION

The role of schools in society is an issue raised briefly by Fien (1993a) as the “curriculum problem”. Environmental education, as I have argued, is a socially transformative activity seeking to develop new patterns of behaviour toward the environment. In contrast, there is an extensive literature that argues that schools serve to reproduce social inequality. A starting point for understanding its central tenets is the work of Michael Apple. Apple’s seminal work, *Ideology and Curriculum* (Apple 1990), has been acknowledged as one of the most significant educational texts of the twentieth century.

Apple’s central argument is that schools reproduce existing social relations and injustice based on class, gender and ethnicity. The crucial and complex issue however, is to understand how this occurs. The concept of hegemony is invoked. This term encapsulates the capacity of dominant groups in society to transmit their particular social codes, values and assumptions to society in a way that preserves and maintains that dominance. It thus becomes the common sense of society. Apple explores this hegemony, describing it as a complex and subtle process in which there are no direct linkages between what happens in educational activity and the reproductive processes. Somehow though, we all remain involved in an enterprise that saturates us with hegemonic meanings. This involves not only what is included in schooling and curriculum, but also what is left out.

Apple considers that educators in general have suffered a failure of nerve in tackling the nature of these processes and cites as an example the shift to a ‘process’ approach in education that remains non-problematic and tackles only safe issues, failing to grapple with core issues of social conflict. This is a criticism that I have voiced in regard to environmental education (Chapman, 2004).

He concludes that schools are far from neutral but impart particular kinds of knowledge, especially positivist technocentric forms that, through their assumptions of neutrality, are removed from critique. Within this framework, Apple argues, particular knowledge is mediated through the curriculum, school texts and instructional materials, and is repeatedly filtered through, and by, unconsciously held ideological beliefs and economic commitments.

Infusing schooling too, is a set of assumptions that we all act individually and this removes us from the realisation that we are locked into a complex chain of interdependence. Apple uses the example of switching on the light. Using an American context he explains that this simple act connects us to those who mined the coal, transported it to the generating facility, those who run the facility and those who built and maintained the line network, and all the others who collect and distribute revenue back to those involved in the enterprise. Schools, he claims, legitimate this naïve sense of individualism that cuts us off from the complex webs of interdependence and thus the other people on whom we depend. He proposes that schools create a false view of our lives before we even begin to consider what is actually included as the knowledge of overt instruction. These buried messages are generally referred to as the hidden curriculum and this is a concept to which I will return.

Personal reflection on our own position as educators is challenging he concedes, involving a rethinking of our values and assumptions that may lead to a set of commitments outside of those we usually accept as commonsense. This can be, as Robottom and Hart (1993) suggest, a painful process and in discussing this I am mindful of the withdrawal from it by some of the teachers in this project. The realisation that as teachers we act to maintain unjust social relations is a potentially shattering one, but one that might stimulate an active rather than abstract commitment to social justice. I would postulate that this realisation is a significant step towards a commitment to act for change.

Accepting these propositions, which are very similar to the central propositions in environmental education, and beginning to act to address them, Apple suggests, requires more than social tinkering. Instead, a fundamental reshaping of the social contract is required. This is not a view Apple comes to from a preconceived ideological position he claims, but one he has been driven to by an analysis of the evidence. Any serious appraisal of education, he contends, needs to situate knowledge, the school and the educator, and be guided by a vision of social and economic justice. I would add environmental justice to his list.

Apple goes on to suggest three basic questions that must be addressed in confronting the way schools impart a selected vision of the world as unquestioned truth. These questions are summarised in the following terms. Firstly, how are the social ideologies that support injustice imparted to learners by the way schools function? Secondly, how is the curriculum structured so that the knowledge taught supports those ideologies? Thirdly, how do these ideologies penetrate the dispositions and perspectives that inform teachers'

work and shape the ways they make sense of their professional activity? All of these things impinge upon the curriculum, both overt and hidden. Thus, Apple directs us to an analysis of curriculum.

Apple builds his ideas on the work of a number of significant scholars in this field including Basil Bernstein, Samuel Bowles and Herbert Gintis, Geoff Whitty, Pierre Bourdieu and Raymond Williams among others, and this work constitutes a literature that is too extensive to be examined here. Based on this work, Apple proposes that any analysis of what happens in schools must be linked to events outside of schooling and particularly to issues of power and economy. Most scholarship in this area, he contends, has been undertaken in a liberal tradition that turns the issues into administrative problems and fails to grapple with them as matters of ethical, economic and political contest and conflict. Gough (1997) voiced a similar view. Robinson's PBM approach falls under this description. It is an approach that I interpret as tinkering and I consider that much environmental education activity and theorising can also be viewed in this light. The Critical PBM approach developed in this thesis has the capacity to engage at these levels however.

Apple goes on to examine the three key assumptions that guide the liberal approach. The first of these is that education is closely linked with the productive economy in the sense that it provides the suitably skilled personnel needed to maintain and expand material progress. The second is that education provides the opportunity to redress and overcome social inequalities through a focus on merit and the opportunity to better one's self through education. The third assumption is that education is an autonomous feature of society, transmitting knowledge and culture and as such, is a neutral force for positive social change. All of these assumptions are evident in the *New Zealand Curriculum Framework* (Ministry of Education, 1993a). Apple accepts that while there is weight in some of those propositions the collective impact of liberalism actually operates against the motives of liberals. He proposes that education does not operate in the way that they assume.

I do not wish to review these assertions in detail here but some statement of position is required. Firstly, as the restructuring of the New Zealand curriculum described in Chapter Three elaborates, curriculum is overtly political and serves an economy which is not neutral but that has instead increased injustice. Secondly, the way in which education operates is biased and favors particular cultural codes and modes of expression that have been described, following Bourdieu, in terms of cultural capital. The poor showing of

ethnic minorities in New Zealand and other societies reflects this biased screening process and Apple discusses this. Finally, the betterment of society is conceived in terms of the dominant economic structures and is limited to a technocentric rationality that is discussed later in this section. It is the general view of the literature summarised in this section that the liberal position is not capable of confronting the issues of justice and equity that are central to the development of a better society because it has fundamental and uncritical faith in the structures that maintain injustice. The recent history of New Zealand provides ample evidence to support this claim.

While a summary of the effects of this process is relatively simple, an analysis of the cause is complex and subtle. The mechanisms of reproduction are enmeshed in every aspect of our culture and communication, including the way we organise ourselves in schools and in work relations, our views of progress and success, and the ways we view knowledge and partition it in particular ways. This extends to our understandings of culture in relation to class in terms of high (ballet or opera?) and low (country music?) culture, and things such as 'polite' language and 'appropriate' ways of speaking and behaving in different contexts. All this extends to the sorts of people we consider important in our society and how we acknowledge them.

As I have mentioned, an analysis of all this is beyond the scope of this work. I wish to side-step that analysis by observing that the result of these things taken together is a society, in fact a whole trans-national culture, built on injustice. That injustice includes exploitation of both people and the environment with the obvious and increasing injustice of the majority at the expense of a minority. The pressing issue is to get beyond a description of these events to action that might address the problems. Fien (1993a) provides some insights when he touches on the work of Aronowitz and Giroux, (1985) and Giroux (1985) who speak of a language of possibility that helps us escape from the depressing language of critique that pervades the neo-Marxist social analysis. These authors (Aronowitz & Giroux, 1993) also develop the notion of teachers as transformative intellectuals who can reflect critically on their practice and act for change. While the notion of teachers as transformative intellectuals has informed and guided this thesis from an early stage, it is appropriate at this point to review Giroux's work in order to examine these ideas. This is the substance of the next section.

9.3 TEACHERS AS TRANSFORMATIVE INTELLECTUALS

In undertaking a selective review of Giroux's work, Robinson's (1993) criticism of macro social theorists returns to mind. She claimed that with minor exceptions the work of neo-Marxist social theorists had demonstrated a marked lack of applicability to the solution of real educational problems. Her response was to limit problem solving to the theories espoused by teachers and attempts to reconcile these with their theories-in-action through critical dialogue. While I criticised that as theoretically promiscuous in that any theory will do to inform such problem solving, I have to agree with Robinson's assessment when considering Giroux's work. It is obscure, dense and repetitive, offering very little in the way of concrete suggestions for practitioners, as I will elaborate. Despite this however, the effort to wade through his work is rewarded by some insights that do contribute to the issues under discussion here.

Giroux (1988) begins by reviewing the educational climate in North America that parallels the New Zealand context described in Chapter Three. He reviews the way education has been overwhelmed by a behaviourist discourse that focuses on efficiency and management. This obscures any debate about what we might be learning by focusing on how we learn best. This discussion is very reminiscent of the criticism of the content of the *Journal of Environmental Education* raised by Robottom and Hart (1993) and Gough (1997). This discourse, Giroux argues, obscures and mystifies its own assumptions and stifles any notion of emancipation leading to self-determining action. Not by accident, it is argued, for as Huckle (1993) suggests, this is an agenda that seeks to tighten the correspondence between schooling and dominant modes of production. Associated with this is a deskilling of teachers that reduces them to technicians enacting a uniform and given curriculum that masquerades as a common culture. This analysis resonates very closely with the analysis of classrooms emerging from this research where, in the most 'managerial' schools, teachers deliver a curriculum plan imposed by management.

Giroux considers that this construction of education simply "dances on the surface of reality" (1988, p. 4) while the hidden messages and purposes of education remain hidden. These include the way schools select on the basis of cultural capital with the associated biases of class, gender and ethnicity. The focus on achieving goals without consideration of what those goals should be depoliticises schooling, promotes self-serving individualism and in doing so reproduces existing conditions. Robottom and Hart (1993) confront these issues in arguing for participatory action research approaches in environmental education.

Schools, Giroux argues, are marked by complexity and contradiction. They are not neutral as supposed by the liberal tradition and teachers need to learn to understand how the dominant culture functions in order to develop a critical pedagogy that can expose this and bring about change. His work links with the thinking in this thesis, not only because of the way it seeks to harness education as a mechanism for achieving a better society, but also because of the ontology implied within it. "We must celebrate the critical impulse and lay bare the distinction between reality and the conditions that conceal reality" (Giroux, 1988, p. 4)

He expresses particular concern that the present structures in schools isolate teachers and reduce the possibilities for democratic decision-making and for developing positive social relations, seeing the divide between teachers and management as especially disturbing in this regard. This is also a concern raised in both this research, especially by Helen, and in research from the United Kingdom (Marshall & Ball, 1999). These trends, Giroux considers, have raised self-interest to the status of universal law.

There is, he suggests, a one hundred year old history of questioning which draws on a range of strands and traditions. Much of it is united in opposition to the imposition of technocratic rationality. Giroux goes beyond Apple's work in suggesting that there are spaces within the complex and contradictory structures of schooling to mount challenges. This involves developing collaborative practices and acting as transformative intellectuals. While this is suggested to require an examination of the curriculum, its purposes, and how it functions as ideology, it also involves recognising that schools are part of the socio-economic fabric and exist in relationship with society. Schools thus warrant careful examination. In particular this examination should include the purposes of schooling and its history, abandoning the false notion of neutrality and submitting instead to ethical and humanising considerations. This, he argues, involves the inclusion of schooling in a social struggle. While this is recognisable as third loop reflection, how it might be achieved in any specific terms remains vague and general in Giroux's work. What needs to be done is elaborated in considerable detail. Giroux reinforces Apple's call for an examination of the nature and substance of curriculum and sharpens the focus on the need to critically review the role of schools in society.

Giroux continues to make a range of points that need to be considered here and are difficult to summarise succinctly. He continues that curriculum reforms have not and cannot solve educational problems because there is more at stake than cognitive issues and

stresses the relationships between schooling and wider society. The messages of the hidden curriculum often undermine the explicit goals of social education, he contends, and these messages are even buried in the dispositions teachers bring to their work.

Schools select on the basis of cultural capital, often emphasising compliance and control ahead of academic activity and this socialising legitimates forms of authority that dominate economic production. As well as this, the curriculum itself is a selection of knowledge that is uncritically transmitted by teachers and associated with positivist views of knowledge that propose that the selection is universal and factual rather than socially constructed. He considers that all approaches to schooling from Tyler to Freire, arise from a view that schooling acts either to reproduce society or to change it, and identifies himself with the latter position. He considers that understanding the hidden curriculum is “the heart of the educational encounter” (Giroux, 1988, p. 34). Suggesting a new democratic pedagogy, he also contends:

Any curriculum designed to introduce positive changes to classrooms will fail, unless such a proposal is rooted in an understanding of those socio-political forces that strongly influence the very texture of day-to-day classroom pedagogical practices.

(Giroux, 1988, p. 28)

This statement is in full resonance with the position developed in this thesis. Further, both the evidence from teachers interviewed here, and the internal critique within the environmental education literature, support this conclusion. However, while these are issues of a serious nature that are given consideration in this thesis, Giroux’s suggestions for actions to address such issues are not always helpful. He asserts for example that the structuring of disciplines within the academy fragments and weakens social critique and in response suggests a new counter-disciplinary approach to academic work, but sees this having to take place in newly constructed settings. He demands that teacher education be reconstructed, suggesting a new pedagogy that would:

Make problematic how teachers and students sustain, resist and accommodate the language, ideologies, social processes and myths that position them within existing relations of power and dependency. Moreover it points to the need for both prospective and in-service teachers to recognise discourse as a form of cultural production, one which serves to organise and legitimate specific ways of naming, organising and experiencing social reality.

He concludes however that before this radical notion of democracy can be part of the agenda of teacher education, the political left has to forge a new concept of active citizenship.

It is at this point that Giroux's work can be put aside. I am reminded, in citing the passage above, of Robinson's (1993) criticism of the neo-Marxist left as having provided very little by way of practical suggestion for solving real educational problems and am forced to agree with her in regard to some of the work summarised above. Giroux makes several powerful points that inform my own thinking in relation to environmental education as an example of transformative practice however. Of particular significance is that the complex nature of schooling and the contradictions within it do provide spaces for alternative practice and transformative activity. Another is that this activity might be seen in terms of a set of macro objectives that overarch the micro objectives of the formal curriculum and involve a critical review and contextualisation of the curriculum. This supports my developing view that an environmental perspective is something that adds to the delivery of the specific objectives of the curriculum by providing a sense of overview, values and purpose. This is notably missing from the work of most of the teachers interviewed, and notably present in those who have undertaken sound initiatives. Claire, Sheila, Tabitha, Una, Valerie and Wyn stand out in this regard.

Aside from that, two significant ideas raised by Giroux remain frustratingly under-elaborated. These are the notions of a language of possibility and the notion of teachers as transformative intellectuals. These ideas will be explored in a later section of this chapter. Before doing that however it is intended to examine the work of Paolo Freire and Ira Shor who Robinson (1993) identifies as the exceptions to her claim that the advocates of macro social theories have in general failed to contribute to educational practice. This review constitutes the next section of this chapter.

9.4 CRITICAL PEDAGOGY

The work of Ira Shor (1992) is strongly influenced by Freire and will be discussed first. Shor describes the pedagogical strategies he has developed in his role as a university educator working in depressed conditions in New York City with students struggling to improve themselves. He is clearly a gifted teacher of great insight, creativity, courage and compassion, and makes several comments that stimulate self-critique by his reader. He points out that education should be done *by* people, not *to* them, and elaborates how he has developed strategies to democratise his work. His summaries of his students and his own methods are moving in their detail and contain insights that most teachers could learn from. While I clearly feel awed by the models of practice he offers, there are some important distinctions between his project and this thesis. Most of Shor's work is in adult literacy development where he has no formal curriculum and can pursue topics developed within his classes. His suggestions are thus of a micro level nature, removed from meso-level curriculum constraints. Further, he is explaining to a reader how to go about developing pedagogical strategies, providing extensive justification. He envisions teachers as mediators in the learning process. While he discusses how he mediates between the discourses of his students and the discourse of formal learning to develop a "third idiom" that merges these in a democratic way, he does not have to face the challenge of accommodating the structures of education in the way teachers in schools do. He does suggest strategies for surviving in tertiary institutions, particularly the notion of "deviance credits". If you do lots of committee work and never shirk a task, you build up credits against which you can speak out on issues or develop alternative approaches. This hardly compares with finding space within the formal curriculum, dealing with the expectation of the school and parents, and satisfying the school review process when doing something differently. Shor deals admirably with the hidden messages within education but not the specific structures and implicit curriculum within schooling or the individual school where the teacher must work. Shor is already empowered.

There are strong similarities between the pedagogical practices of Shor and Paulo Freire that are not accidental. Elias (1994) reports that the two spent some time together and Shor's description of his own work seems to me a better description of Freire's pedagogy than Freire's. The point here however is not to describe these but to briefly review them with a focus on the nature of the empowerment process.

Freire's (1972) work appears as a formal theorisation of the pedagogy he developed between about 1947 and throughout the 1950s and early 1960s in emancipatory adult literacy development among the Brazilian poor. Elias (1994) makes the point that Freire later modified his approaches in response to this theorising. Central to Freire's approach is 'conscientization' developed through democratic dialogue, as a result of which, those in education are able to see through their existing reality and come to inhabit a new transformative reality. This process seems best described in the preface to Freire's (1972) work, in the translators note. Conscientization is:

learning to perceive social, political and economic contradiction, and to take action against the oppressive elements of reality.

(Freire, 1972, p. 17)

This is seen as occurring in three stages. The first is intransitive consciousness, in which people are immersed in meeting their basic needs and see the world in which they live as given. They are likely to be fatalistic and ahistorical. In the second phase, semi-transitive consciousness people begin questioning their situation but at a basic level. They have some control over their lives but are in particular danger of falling prey to manipulative leadership. This is also called popular consciousness. At the highest level, critical transitive consciousness is achieved. This involves the ability to critically reflect on one's own thoughts and to see causal relationships between events. This is the consciousness found in genuinely democratic regimes it is argued. In reviewing Freire's work, Elias (1994), whose work I have drawn on heavily here, makes a number of criticisms that I simply wish to acknowledge and note that Freire himself (1972) acknowledges the tentative nature of his work and invites debate.

It is perhaps stretching the point to identify some of the teachers involved in this research as being at a stage of intransitive consciousness, where coping with daily requirements is a sufficient challenge. Given that all have made some sort of start in involving themselves in a course in environmental education, perhaps most can be seen as in semi-transitive consciousness, beginning to question but in a fragile way, and in danger of falling back. The "naïve indigenous" and "imported expertise" initiatives reported could be seen as falling into this category, along with all the nature study and litter schemes reported in the literature. Critical transitive consciousness is, under this analysis, the goal of empowering education and is most closely approached by the "informed indigenous practice" emerging in this research. The epilogue to Chapter Seven reports that most of this practice has failed to persist however.

Some discussion is perhaps appropriate here. These levels of conscientization can be tentatively linked to the ability of people to confront and link empirical, material and finally deep reality as they have been explained in this thesis. Freire makes the point that:

The more radical a person is the more fully he or she enters into reality so that knowing it better he or she can begin to transform it.

(Freire, 1972, p. 21)

Not only does this resonate with what I have said so far in this thesis, but it also sits comfortably with the idea of accurate problem description that has been emphasised throughout. This shift from an oppressive reality to a transformative one is seen as taking place through problem solving dialogic education. Although proposing making education problematic and considering social problems through education, there is a 'religious conversion' tone in Freire's work that does not seem particularly helpful:

The man or woman who proclaims devotion to the cause of liberation yet is unable to enter into *communion* with the people, whom he or she continues to regard as totally ignorant, is grievously self-deceived. The convert who approaches the people but feels alarm at each step they take, each doubt they express, and each suggestion they offer, and attempts to impose his "status", remains nostalgic towards his origins. Conversion to the people requires a profound rebirth. Those who undergo it must take on a new form of existence; they can no longer remain as they were.

(Freire, 1972, p. 43)

This religious metaphor is not especially helpful because it mystifies how people come to see the world differently and change. Shor (1992) emphasises, for example, that he developed his strategies and skills over several years. Elias (1994) notes too, that Freire has been criticised for the eclectic nature of his philosophy, shifting as it does from traditional Christianity toward a more Marxist analysis, especially after his imprisonment in 1964. Like Shor, Freire was working in non-formal education settings with adults, and this is a profoundly different situation from the context faced by teachers.

In briefly reviewing this literature then, although a number of fascinating insights emerge, a significant problem remains to be illuminated. This is the problem central to this thesis, how can teachers be empowered to act for the environment *in schools*.

9.5 BEGINNING SOME NEW THINKING

The work summarised so far in this chapter provides a third-loop review of education examining the purposes education serves within society and considering how that impacts at second-loop level. This is the level of the curriculum, but it is only engaged in the abstract. It acknowledges that economic processes are a driving force and links the reproduction of current arrangements with dominant social groups. The empowerment agenda is seen as the development of truly democratic education and a democratic society. Beneath that agenda is a faith that humans are fundamentally good and can work collaboratively for a better world but that this is prevented by the culture of self-serving individualism.

What is missing throughout this summary however is a clear idea about how a transition towards such an ideal might begin (Robinson's criticism). It now remains to draw together the second and third loop insights that arise from the sociological literature and the review of the New Zealand context. There is a need to merge these with the first and second loop insights that arose from the interviews with teachers in order to provide an accurate description of the problem impasse and thence to begin to theorize ways to move forward.

Schools, it seems, reproduce existing social relations via the overt and hidden curricula and through the credentialing processes that they perform. Successive New Zealand governments (see for example, Ministry for the Environment, 1992) have argued that the cost of the 'welfare state' was too expensive and in response, have maintained a restructuring process that is intended to tune education towards economic ends (to tighten the correspondence between schooling and the economy). This has involved the development of an objectives-based curriculum enforced through the educational review process, and the marketisation of education. In some schools, the organisational responses to these new pressures have been 'managerial', reducing teacher professionalism and autonomy. While many statements in favour of the environment and social justice can be found in the curriculum, an emphasis on numeracy, literacy and ICT has dominated curriculum delivery. While many teachers hold strong views about the environment and others express growing concern, the barriers to developing new practice have been identified through the research processes described above. They appear too high for most teachers to overcome, even with external support. Teachers with especially high

commitment and strong values do initiate sound programmes but it seems that the energy required to do this is not sustainable. Ministry funding and support has acted to assist such programmes but there is no evidence to suggest that these have been maintained for any length of time except in a tiny minority of cases.

The guidelines for environmental education (Ministry of Education, 1999a) emphasise that environmental education is not compulsory. Further, the concept of education for a sustainable future is not mentioned in the educational priorities for the period, 2003 to 2006 (New Zealand Government, 2003). The conclusion must be drawn from this that the structures that constrain teachers are unlikely to change in the near future. The *impasse* discussed in this thesis then, does not appear to be able to be addressed through micro level initiatives alone. In response to this situation it seems that the idea of 'empowering teachers' as individuals is a rather naïve one. It is simply an inadequate response to the scope of the *impasse*. Effort at all three levels of social reality is required. The question remains, how might that be thought about? How might our approach to schooling be reconceptualised in order to begin to confront the *impasse* at this range of levels? This task is undertaken in Chapter Ten.

CHAPTER TEN: Rethinking schooling

10.1 INTRODUCTION

The discussion in the previous chapter drew attention to the central role schools play in reproducing existing social relations through the complex mechanisms of curriculum. The recent New Zealand history described in Chapter Three demonstrates the strengthening of this hegemony through the restructuring of schooling. It has been argued that confronting this hegemony should be, but has not been, a central task for environmental educators. In response to both the lack of progress in environmental education and to the criticism of critical theory as unhelpful in confronting real problems, ways to rethink approaches to schooling are required. Beginning this task is central to this chapter. It has been suggested (Chapman, 2004), that environmental educators have not actually demonstrated a critical approach at a practical level because there are few theoretical frameworks to facilitate this.

In beginning this chapter I suggest that teachers face a multiple set of tensions and compromises in their work that cause a kind of cognitive gridlock. There is a limit to how much they or any other human beings can cope with simultaneously, and the multiple tasks asked of teachers clearly go beyond this threshold. The evidence from the interviews with teachers shows that they have limited time and that environmental education is not considered a priority. Teachers make pedagogical compromises on a minute by minute, as well as longer scale basis. These are short-term pressures. At another level there are decisions on how much time to allocate to the multitude of planning and administrative tasks that must be done outside of classroom teaching time. These are the conscious and usually deliberate decisions that make teaching such a demanding job.

There are other sets of compromises that are often not conscious, deliberate or knowing, but rather unconscious, intuitive and sometimes unwilling. These are buried in the culture of the school, in curriculum decisions, in pedagogical assumptions and in school processes. It was the common theme of the literature reviewed in the previous chapter that these hidden aspects of schooling require examination. They must be tackled overtly before conscious and deliberate thinking about them is possible. Several of these issues have arisen in the descriptive work conducted so far in this thesis. Pre-eminent among these are the content of the curriculum and the role of schools within society. Several compromises on these matters are occurring at once in schools and these decisions interact with each other in complex ways. In order to make

progress in unpacking some of these compromises and their inter-relationships, the first intention in this chapter is to identify what some of these compromises are and to briefly discuss the tensions at work within each of them.

These include issues related to the way the curriculum is designed and the conceptions that inform the process, the content of the curriculum and its hidden messages, the purposes that curricula are intended to serve and the role of schools in society. These issues need to be considered in the light of a range of environmental philosophies and the implications of normal school activity and of environmental education for social reproduction or change considered.

It is intended to layer these compromises in diagrammatic form as an *issues matrix*. This provides a framework for thinking about the implications and coherence of the compromises being made. The *issues matrix* will then be re-visioned in the context of critical reflection at first, second and third loop levels, and the implications of this process explored. The result is a single diagram summarising a whole process of thinking. It needs to be made clear that this is only a map of the intellectual terrain that needs to be covered. Each step involves the wider examination of the broad set of theoretical issues that are referred to, but not canvassed in detail, within this thesis. Many issues have further implications that are mentioned only in the briefest terms. As an example, the underlying conceptions that inform the construction of a curriculum have implications for pedagogy and assessment but these are not discussed. What is intended through the work in this chapter, is to scope these issues in order to initiate new thinking about the impasse described in order to provide a starting point for transformative practice. Theorising the details of the application of all the ideas brought into focus is a separate project.

10.2 AN ISSUES MATRIX AS A CONCEPTUAL FRAMEWORK

10.2.1 Level one; environmental philosophies

The *issues matrix* shown in Fig 10.7 contains six separate layers. Each layer contains a separate set of tensions that impact on environmental educational practice. These issues are reviewed in turn starting at the bottom level of the matrix.

O'Riordan (1989) identifies four perspectives in European Environmentalism as described in Chapter Two. These include Interventionist and Accommodationist positions, which he identifies as 'Technocentric', and Communalist and Gaianist

positions, which he sees as 'Ecocentric'. I reinterpret and simplify his analysis slightly. For the purpose of this thesis I see Interventionist and Accommodationist views as differing in degree but having a fundamentally economic focus towards environmentalism. Communalists, in contrast, have a major focus on a new vision of economy that puts people and equity before surplus accumulation as an essential precondition to caring for the environment. The focus of the Gaianist perspective more strongly emphasises environmental justice and nature as a partner. While acknowledging that these may be oversimplifications, I thus reduce O'Riordan's (1989) four perspectives to three. Most practical responses to the environment I now argue make some kind of compromise between these three perspectives as set out in Figure 10.1. Thus, under this analysis, the teacher will have an environmental philosophy that is a compromise that can be positioned somewhere on Figure 10.1.

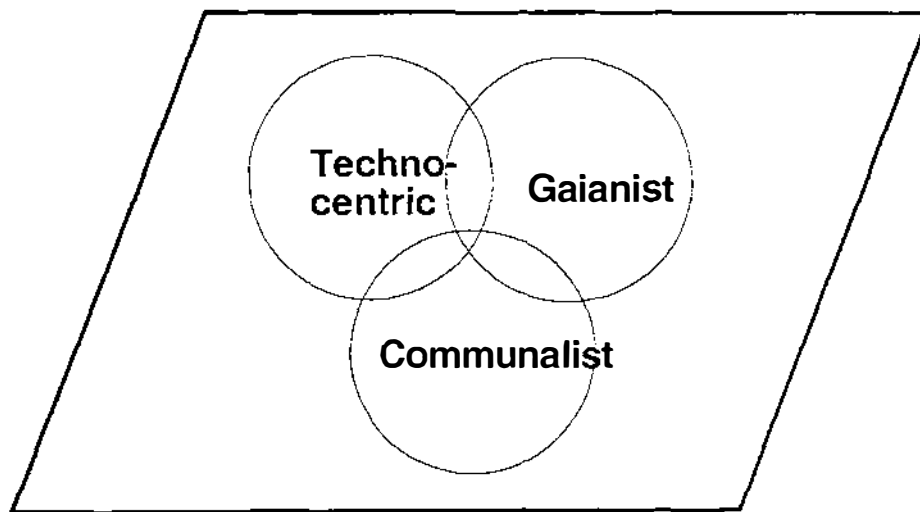


Figure 10.1 Eco-philosophies

There is a need for those involved in environmental education to clarify their own position in relation to a framework of this kind and central to this is understanding what environmental education is about and what it sets out to do. Conducting this analysis and positioning one's self within it allows for two things to occur. Firstly, we become self-consciously aware of our own philosophical position in talking about the environment and are hence able to declare it and discuss it. Secondly, we are able to analyse the similarities and differences between our own views and those of others or those contained in textual materials. This allows for both ideological analysis and self-criticism that should be linked to, and be justifiable in terms of, the goals for environmental education.

Clarification of this set of issues then allows us to approach the structures within schooling with a useful and critical frame of reference. The most pervasive of these

structures is the curriculum (Apple, 1990; Giroux, 1988) and that provides the next subject for analysis.

10.2.2 Analysing curriculum conceptions

In discussing curriculum Eisner (1979) identifies five fundamental approaches that Print (1993) calls "conceptions". Print proposes a sixth, thus adding to Eisner's (1979) notions of Academic Rationalism, Cognitive Development, Personal Relevance, Education as a Technology and Social Adaptation or Reconstruction, that of an Eclectic conception. Print (1993) argues that most curricula are an eclectic mix of elements of the five conceptions proposed by Eisner (1979). These conceptions contain hidden values and assumptions about teaching and learning.

An Academic Rationalist conception sees knowledge portioned in traditional subjects whose disciplinary nature is adjudged by experts in the field. Bodies of knowledge are provided for learners to assimilate, and they are tested on their ability to recall such knowledge. It is associated with didactic and behaviourist approaches to learning and makes few links between disciplines, but can be softened by sympathetic pedagogical approaches.

A Cognitive Development conception imagines cognition as something akin to muscular action that can be strengthened by training. It focuses on problem solving and the process of learning, tending to favour learner centred and interactive pedagogical approaches, but often rests on traditional disciplines for its structure.

A Personal Development or Humanist approach, as Print (1993) refers to it in expanding on Eisner's (1979) description, centres on issues that relate to the contexts and experiences of learners. It takes a holistic approach in which the learner develops their human potential. This may have very informal pedagogical associations, the focus being on the learner developing themselves with the support of the teacher.

The Education as a Technology conception sees education as a way of responding to problems and is strongly behaviourist. It involves expressing the problem in terms of objectives which become the intentions of the learning programme and which are subsequently assessed.

The final conception contains a set of positions in which schools and curricula are seen as reproducing, adapting, or reconstructing society to meet particular ends and may imply a mix of pedagogies. The social reconstruction conception is often associated

with a critical and radical view of society but can just as easily inform the position of other interest groups seeking, for example, to reconstruct society towards reactionary rather than emancipatory ends.

10.2.3 Level two; curriculum compromises

I consider that this analysis can be subdivided in a useful way. The first three conceptions, Academic Rationalism, Cognitive Development and Personal Relevance are indeed positions that underpin the construction of curricula. The other two, Education as a Technology and Social Adaptation or Reconstruction conceptions, are subtly different in that they more obviously focus on the ends which education will serve. As explanation consider the following:

An educated person has command of the traditional disciplines. An educated person has the ability to think independently and solve problems using cognitive processes. The educated person has explored their own context and made sense of their situation within it. In contrast one could say, "education should shape a better society" if one subscribed to a reconstructivist view or similarly "the curriculum should address the problems of numeracy and literacy" as an Education as Technology conception would advocate. These latter two conceptions are about purpose rather than the qualities of an educated person. I suggest, after Print (1993) that all curricula are an eclectic mix of these conceptions but see two sets of compromises occurring as indicated above by identifying two groups of conceptions. The first of these forms the second level of the matrix seen in Figure 10.2.

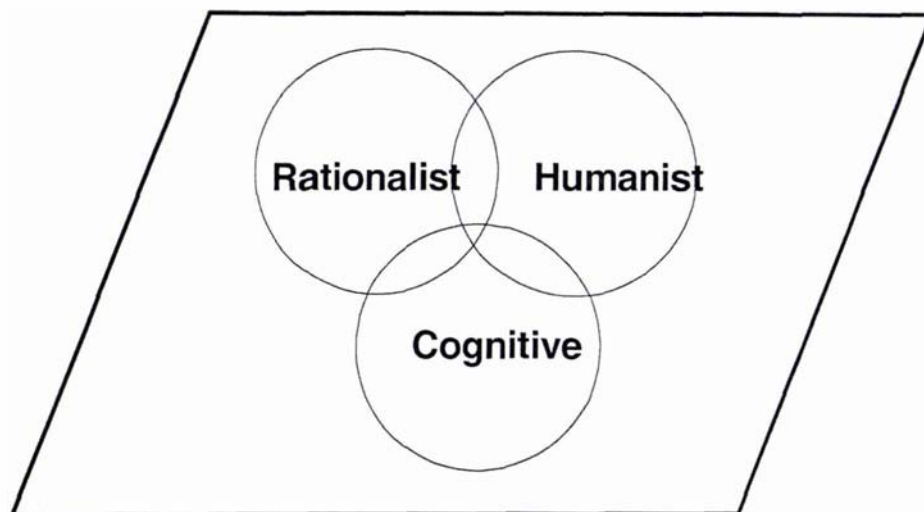


Figure 10.2 Curriculum conceptions

Figure 10.2 captures an eclectic mix, or compromise, involving the first three conceptions. It is highly unlikely that any real curriculum would completely ignore any one of these conceptions. That it would not, for example, contain any remnant of traditional academic subjects, would alternatively contain no reference to developing cognitive ability, or ignore issues of relevance to learners completely. Thus any curriculum, whether it be a formal document or the way a school interprets and operationalises that document, will contain a mix that I argue should contain a considered and conscious compromise. That compromise should be consistent with the view of environmental education that was developed in the reflection at the first level, Figure 10.1.

10.2.4 Level three; purposes of curriculum

The remaining two conceptions can now be considered in relation to the sense of purpose discussed previously. There is a subtlety here. I am distinguishing between the purpose of curriculum and the purposes of schooling that I address in a following section. This is partly artificial since the two might be seen as related. However, in this case I am considering ways of thinking about the curriculum as a sub-set of schooling as an institution. I suggest that most people could identify things the curriculum should do and two were mentioned above. In Figure 10.3 below, the purpose has been placed in the centre. It is then necessary to decide the implications of that purpose in terms of the Social Adaptation or Reconstruction conception that are implied by the central purpose(s). That set of issues has been positioned surrounding the Education as a Technology conception.

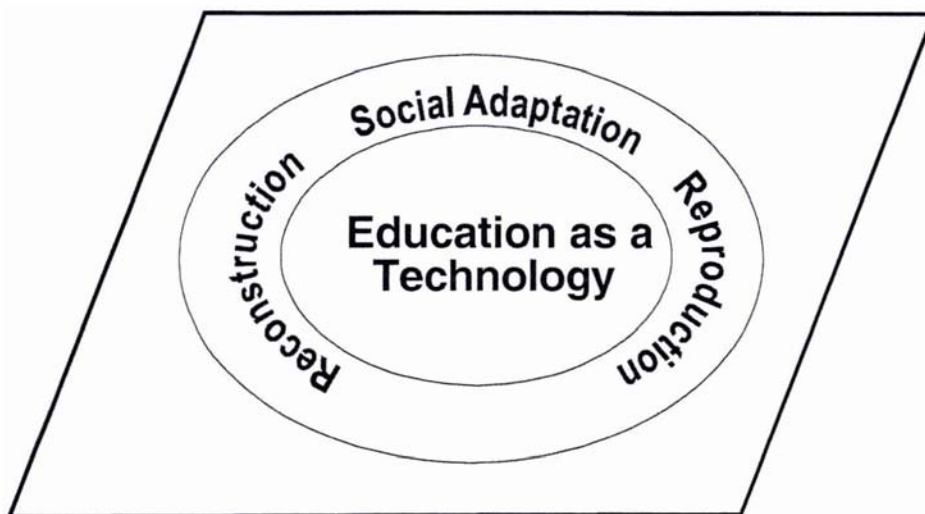


Figure 10.3 Curriculum purposes

In these two levels relating to curriculum then, we are able to consider the assumptions that underpin the structure of the curriculum, along with the implications of the purposes it seeks to serve that it has been argued should be consciously considered. Eisner (1979) makes a further contribution to an understanding of curriculum that is considered in the next level.

10.2.5 Level four; the three curricula all schools teach

Eisner (1979) claims that seeing curriculum in terms of the written statements schools are charged with putting into action in their programmes, the Explicit Curriculum, does not capture what schools actually do. In sympathy with the sociological literature mentioned in the previous chapter, he considers that there is a whole set of implicit messages that schools deliberately and accidentally transmit to learners (and to novice teachers). He calls this the Implicit Curriculum and this is a term I prefer to the notion of the hidden used by Print (1993). I prefer Eisner's term because I consider much of the non-written curriculum is completely overt and deliberate, although it may be perpetrated uncritically. I concede that there are levels of culture and values that are unconscious and are hidden, but see this as a subset of the implicit curriculum. Regardless of how one views this definitional debate however, there is a substantial portion of what is done in schools that cannot be found in curriculum documents and Giroux (1988) contends that it has more impact on learners than the taught, or explicit curriculum. In parallel with these two curricula, Eisner identifies the Null Curriculum, that material that is not addressed at all in schools. This concept acknowledges that all curriculum content is a selection and what is left out is as significant as what is included. It is a political decision, as Apple (1990) makes clear.

This includes topics such as Peace Education, the Law, education about Government, political education, Maori Language and, of course, Environmental Education. It seems striking that all of these contain a critical element. In particular, teaching Maori Language involves a cultural as well as political critique. This consideration of the Null curriculum suggests that critique is rejected as inappropriate in schools and the argument could be mounted that these subjects would challenge the dominance of groups who currently influence the content of schooling.

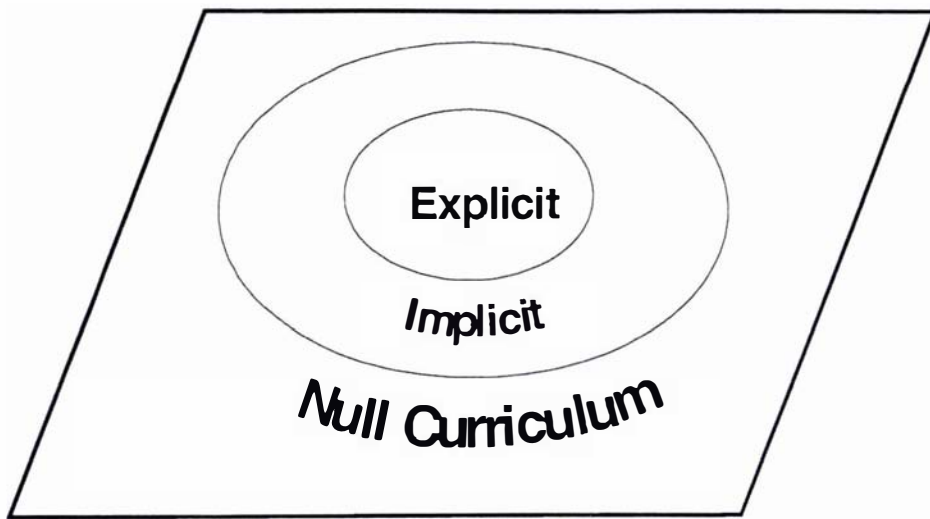


Figure 10.4 The three curricula all schools teach

Thus, such studies are largely excluded, or introduced in neutralised forms. This argument supports the views summarised in Chapter Nine that education currently serves a socially reproductive purpose.

Analysing this level however requires that we think about what is contained in each of these three curricula, and what should be in them. Further it requires us to consider whether the content of the explicit and implicit curricula are consistent and coherent. Referring back to the sociology again, it is suggested by the literature referred to in Chapter Nine that the implicit curriculum in schools often contradicts and undermines the democratic intentions of social education and this is of concern in environmental education too. Three levels of this developing matrix have thus been devoted to developing an understanding about the complexities of curriculum. In the next section a step back is taken in order to consider the purposes of schooling taken as a whole, seen from the outside rather than the inside.

10.2.6 Level five; the role of schools

The intention in all these sections is to simplify complex debates and make the development of transparent compromises open for discussion and scrutiny. In this section it is intended to identify three broad tasks that schools might reasonably be asked to contribute to. These include developing workers for the economy, and developing literate citizens, whatever view of citizenship that might involve. The final task is to develop the person as a human being. Kemmis (1983) provides an interesting early view of this debate that is later sharpened (Kemmis, Cole & Suggett, 1994), describing how these visions of purpose shape or might shape schools as institutions. I

suggest that schools in fact try to compromise between these three contending purposes. I suggest further, that the compromise is often a poor one because it is unconscious. This compromise, set out in Figure 10.5, introduces a different dimension from the issues raised so far. The difference I see is that many people would alter the nature of this compromise as learners proceed through the education system.

The Early Childhood curriculum, *Te Whariki* (Ministry of Education, 1996) emphasises the development of the child as a person and member of their community and family, the last position in the previous list, and the document is obviously informed by a Humanist conception of curriculum. *The New Zealand Curriculum Framework* (Ministry of Education, 1993a) in contrast, emphasises the role as worker and citizen, although which of these is dominant, or how each stated intention is reflected in the three curricula that schools teach, is difficult to unpack.

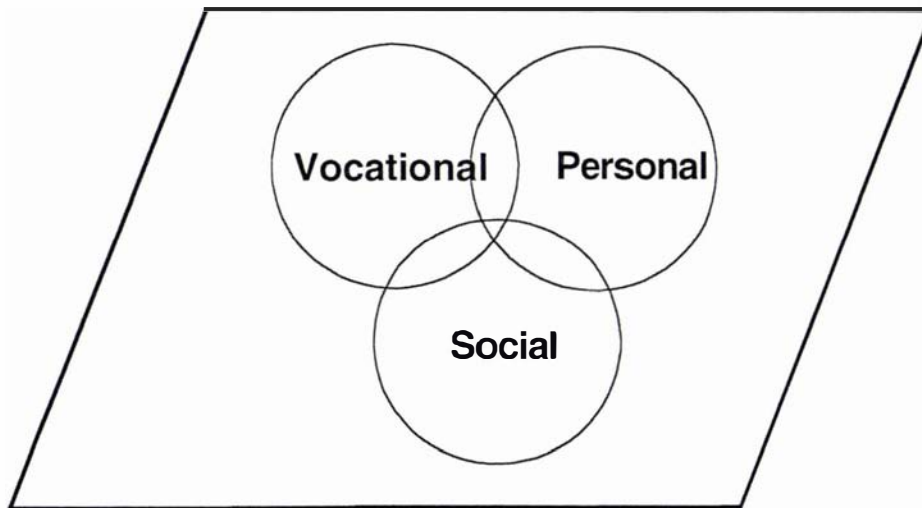


Figure 10.5 Purposes of schools

That aside, the role of schools is an issue that teachers should think about consciously because a compromise of some sort, conscious or unconscious will be expressed, not only through the school programme, but also through the unconscious messages transmitted in daily interactions. Whatever compromise it may be, in keeping with the whole debate in this section, it should be considered and open to discussion and critique. Having considered these five levels of compromise there is another issue that I propose needs to be included in this matrix. It involves the teacher developing a self-awareness about what they think and do. This is the centre of attention in the next section.

10.2.7 Level six; the teacher's position

The intention of this work is to assist teacher empowerment. In particular, to help teachers who want to incorporate environmental education into their practice and to act transformatively. This process is intended to be open and transparent, and involves protecting teachers from unanticipated challenge and potential danger. Part of the thinking involved must be akin to risk analysis.

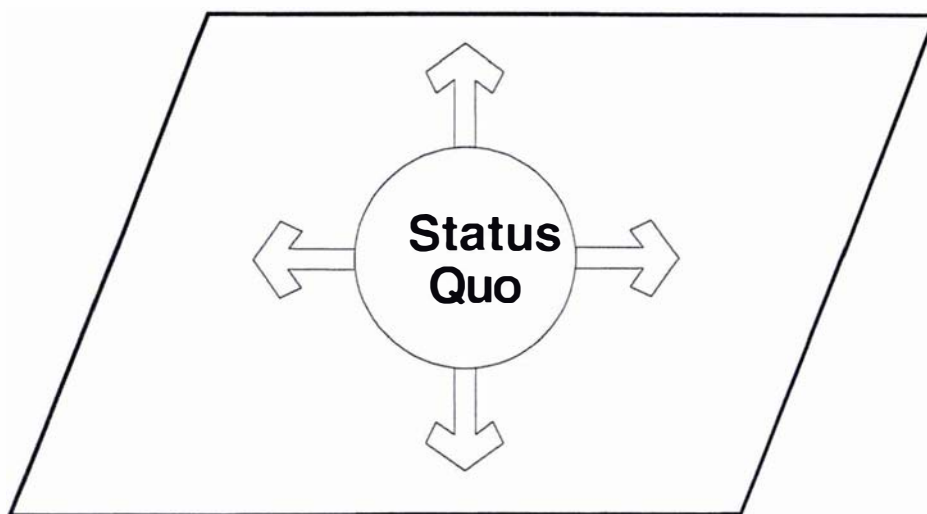


Figure 10.6 The teacher in society

This involves thinking about how the positions that people take on the ladder of multiple compromises being developed here, fits with the society or community in which they live and work. Transformative practice will almost certainly involve some degree of challenge and that needs to be considered. This issue involves delicacy and compromise. There is little point, for example, in taking a radical stance if the result is the loss of one's job. There may be conditions where that is productive, but a considered, longer-term strategy might suggest a more moderate approach. Whatever a teacher chooses to do, there is a need to weigh up the impact that it is likely to have, particularly in the eyes of the school community and therefore, on the school.

The activity must be able to be justified in terms of the curriculum and in terms that the community will understand and this is a tightrope to walk. The point is that it should be walked knowingly and deliberately and not by accident or carelessly. In an attempt to encapsulate this awareness Figure 10.6 has been constructed.

This diagram attempts to identify the teacher's position and by pointing arrows in each direction, ask how does this differ, in terms of the multiple compromises in the matrix, from society in general. Further, is society heading towards or away from the teacher's position? There is a sense of dynamic here. What is the change being pursued by the teacher and where does it fit within the current social vision?

These six levels comprise the central feature of the theoretical matrix that has been developed to begin to discuss the impasse central to this research. This matrix involves complex and integrated thinking but it is only after the ability to consider and reconcile the multiple compromises involved has been developed that its real use becomes apparent.

10.3 USING THE MATRIX

The complete matrix, set out in Figure 10.7 below, combines all the issues mentioned in the previous section. It is a representation however, and everything in it is changeable. The size or shape of any figure within it can be changed. On any layer the diagram can be rotated or shifted in any direction across the surface. By conducting a mental exercise in which, in the first instance, one identifies one's compromise on each level and in the second instance, adjusts those compromises so that they are collectively coherent, one might imagine being able to poke a needle through the layers to mark that set of positions. This locates one's position for scrutiny and critical reflection. In particular one should be able to discuss and justify the complex and multi-dimensional educational stance one takes and check that its internal contradictions are minimised.

This is not to reify the device however. It is merely an heuristic for conceptualising the complexity of the issues discussed in order to assist critical reflection by those who wish to do so as explained in Chapter Four. Undertaking this process means clarifying a coherent educational philosophy that is consistent with a robust environmental philosophy. It is assumed that the purpose of doing this is to theorise, develop, and defend the inclusion of environmental education into daily educational practice. The thinking within the matrix occurs at the personal or micro level and is first loop reflection and learning. This strikes a balance between practitioner driven and theory driven approaches signalled in Chapter Eight in that a theoretical framework is provided to assist reflection by practitioners.

Grasping the Complexities of Structures and Values

Each layer can be moved North, South, East, West or rotated as desired. The relative size and position of any space in any figure changes too.

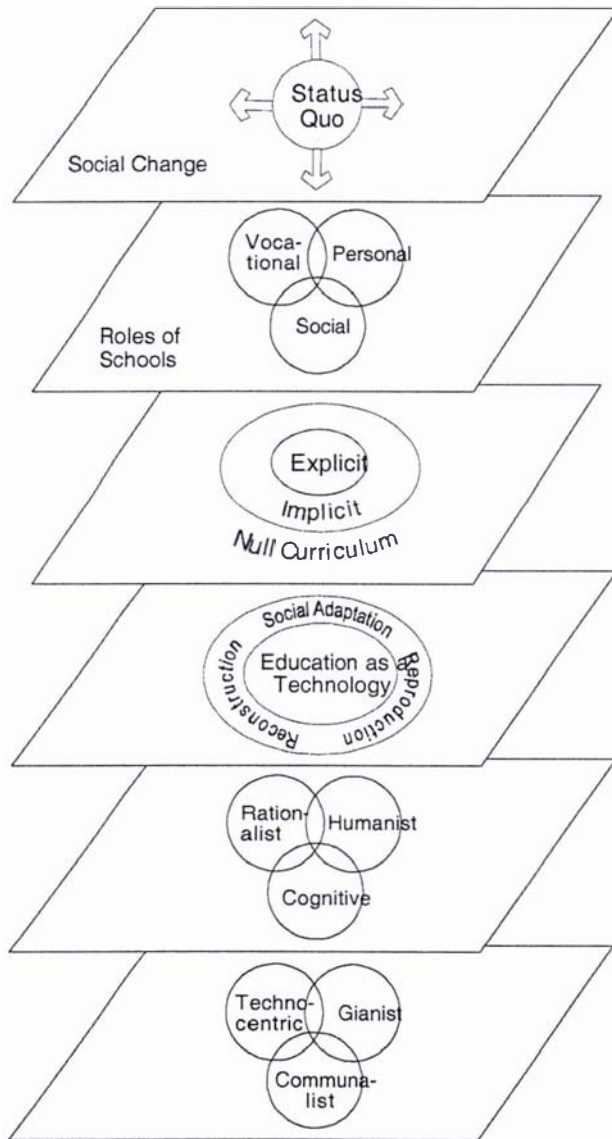


Figure 10.7 The issues matrix

What has shown up in the data arising from teachers' work in this thesis, is that often the school context constrains action, even when there is evidence that teacher reflection and theorising has occurred. This is most obvious in the evidence provided by Helen. These constraints occur at the meso, or second level. This is part of the material social reality that shapes teachers' work. To deal with this, the matrix needs to be used as an analytical framework to consider how the school as an institution resolves the multiple compromises identified. This is more complex than first loop reflection for a number of reasons. The first is that it reifies the school. Schools or any other institutions are not cohesive entities but vague, semi amorphous collections of people who exercise power and status in complex ways. The second reason is that schools have flexibility to interpret the formal rules and laws under which they act. These laws and regulations contain a set of compromises on the same issues that arise from the political processes of wider society.

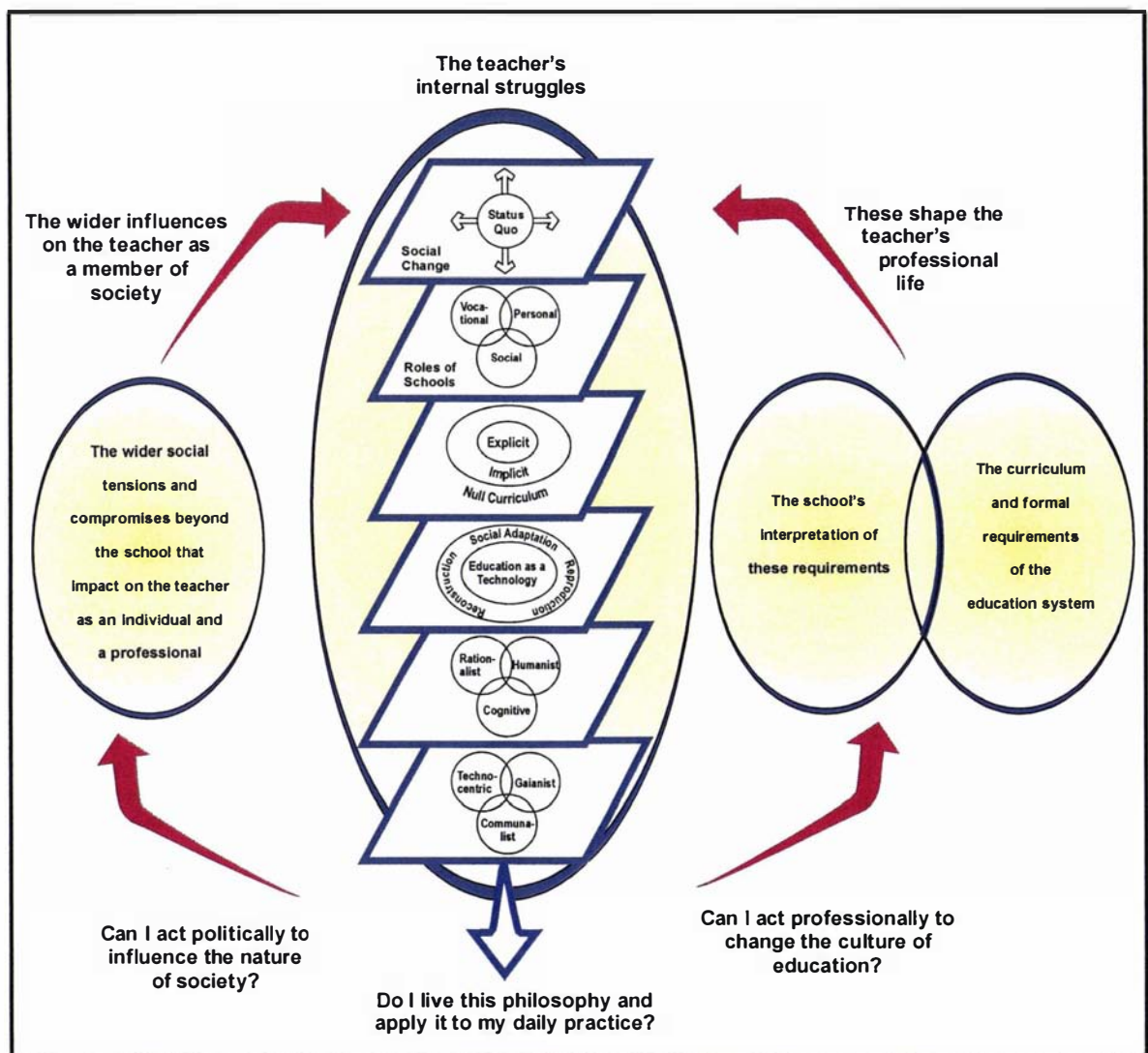


Figure 10.8 Triple loop reflection

In terms of the critical realist position taken here, both these analyses are at second loop level of the material reality of social structures. Material reality is, it has been argued, shaped by forces that lie in deep social reality. For simplicity here, I will identify the deep reality of education as the economic and political influences that bear on the parliamentary process that makes the rules governing education. That includes the social structures and power relations amongst those who seek to shape parliamentary decisions in various ways. Somehow we must try to understand the issues compromises being forged at this level too. An attempt to capture this complexity is contained in Figure 10.8 above.

Here, the theoretical matrix is expanded as follows: Each oval in the diagram contains the same sets of issues but, for simplicities sake, they are not redrawn. The central oval, the teacher's critical tensions, constitutes first loop reflection. Having established a conscious view of our own work we must reflect on how well we put our ideas into practice and seek to do this better.

There are constraints however. These are found within our schools and in the rules and forces that govern them. In second loop reflection we can look at our institution, its processes, and how on one hand, they reflect the multiple compromises found in the matrix, and on the other, whether environmental education may be incorporated within these.

A series of questions arise. Is the school's approach internally consistent? Are there possibilities to work within this culture and adapt or change it? Who is there to work with? Environmental education should be collaborative and the evidence from this research and beyond suggests that if you face all these challenges alone there is a limit to how long you will be able to carry the load. This is part of the second loop of reflection. There is a point where an institution is so resistant to change that one has to consider abandoning the endeavour or moving to a more conducive school.

Some issues are external to schools though. The *Guidelines* (Ministry of Education, 1999a) are voluntary but there are emphases on the environment in the curriculum. Is it possible to draw on these and to shift some of the issues compromises so that environmental education fits better, or utilise environmental education to provide solutions to other school problems such as curriculum linking? How transformative can a teacher be before people feel uncomfortable? What community consultation might be needed to explain what is intended and to gauge feeling about it? There may

be places in which school structures support environmental education that have not been thought of.

Here we start to merge into third loop reflection. The rules under which schools work are shaped by society but are influenced by economics and politics. Some of the ways schools work can only be tackled at this external level. Identifying that is a start. This is the hardest level to work at but environmentalists must learn to function effectively at this level to bring about change. This research shows that environmental education is not currently a priority in schools it must be remembered.

What Figure 10.8 seeks to capture is the inter-relatedness of the three levels. The work of the thesis shows that school structures dictate teacher behaviour except where institutional inertia is low. In these cases the individual teacher has agency within the school to act independently or to make changes. Claire could act independently. Una and Valerie changed their school. Wyn was able to fit environmental education into her syndicate planning, take others with her, and then make it a feature of the school's programme. In general though, most teachers did very little because schools did not see the environment as important and this can only be addressed by changing its status in the curriculum. This probably needs to be supported by changed social values and this is third loop activity. What Figure 10.8 is not able to do is show the interaction between deep reality and material reality. It has also not tried to capture the possibility that emancipatory teaching may influence material and deep reality through the future actions of learners as critical and active citizens.

As it stands however, Figure 10.8 captures first loop learning in the micro social context of empirical reality in its central oval. The linked ovals on the right hand side represent the material reality of school and educational structures that influence the teachers' work and which can be shaped to some degree by their actions. On the left, deep reality shapes the teacher's view of the world through interaction with culture, language, the political economy, and in meeting basic needs. Deep reality also shapes material reality. Our capacity to change deep reality is limited but requires political action. This diagram, while showing how the issues matrix can inform triple loop reflection, is not complete. The normative framework that informs such reflection remains implicit. Further, there is no sense yet of how reflection might lead to action. These issues are addressed in the next section.

10.4 A COMPREHENSIVE THEORETICAL APPROACH

In her description of Problem-Based Methodology, Robinson (1993) contends that the criterion of 'improvability' provides a normative standard against which problem solutions can be judged. The judgement is in the hands of those within the problem situation. In the Critical Problem-Based approach developed here, an external framework for evaluating work in 'environmental education' is implicit because the expression invokes reference to a wider body of theorising and negotiated meanings that arise outside any individual institution. This normative framework needs to be explicit. There is a range of reasons for this. Most important perhaps is the point that evaluation of our efforts can only occur when the criteria for doing so are clarified. Further, clarifying and declaring the framework used to evaluate renders it both transparent and open to negotiation. These issues have been the key argument in developing the whole issues matrix in the first place. In democratic situations our ways of doing things need to be both transparent and open to negotiation and change. This is also a feature of PBM.

In Chapter Two, a statement of the central tenets of environmental education was distilled from the Tbilisi material and strengthened by a reference to the concept of sustainability (Figure 2.3). This has guided the ideas in this thesis and is proposed as an evaluative framework for school-based efforts. In general however, practitioners need to be involved in either developing or approving such a framework. While I am satisfied with this summary, with some qualifications, I am not suggesting it is universally acceptable. None-the-less, I propose that some guiding statement of this kind that serves as a normative evaluative framework on environmental education is required to guide the use of the issues matrix and inform the values judgments involved in that use. This idea has been added to the diagram above (Figure 10.8) to develop Figure 10.9, by identifying a 'framework for critical reflection' that infuses the reflection process.

As a result of reflection thus informed, educators can use the matrix to examine their daily practice, the institutional and wider social structures which shape and constrain their work, and the deeper social forces that shape both of those. They have the opportunity through such reflection to identify inconsistencies in the messages they transmit or between different aspects of their practice. They can also identify factors that might constrain or support that practice.

Framework for Critical Reflection on Environmental Education

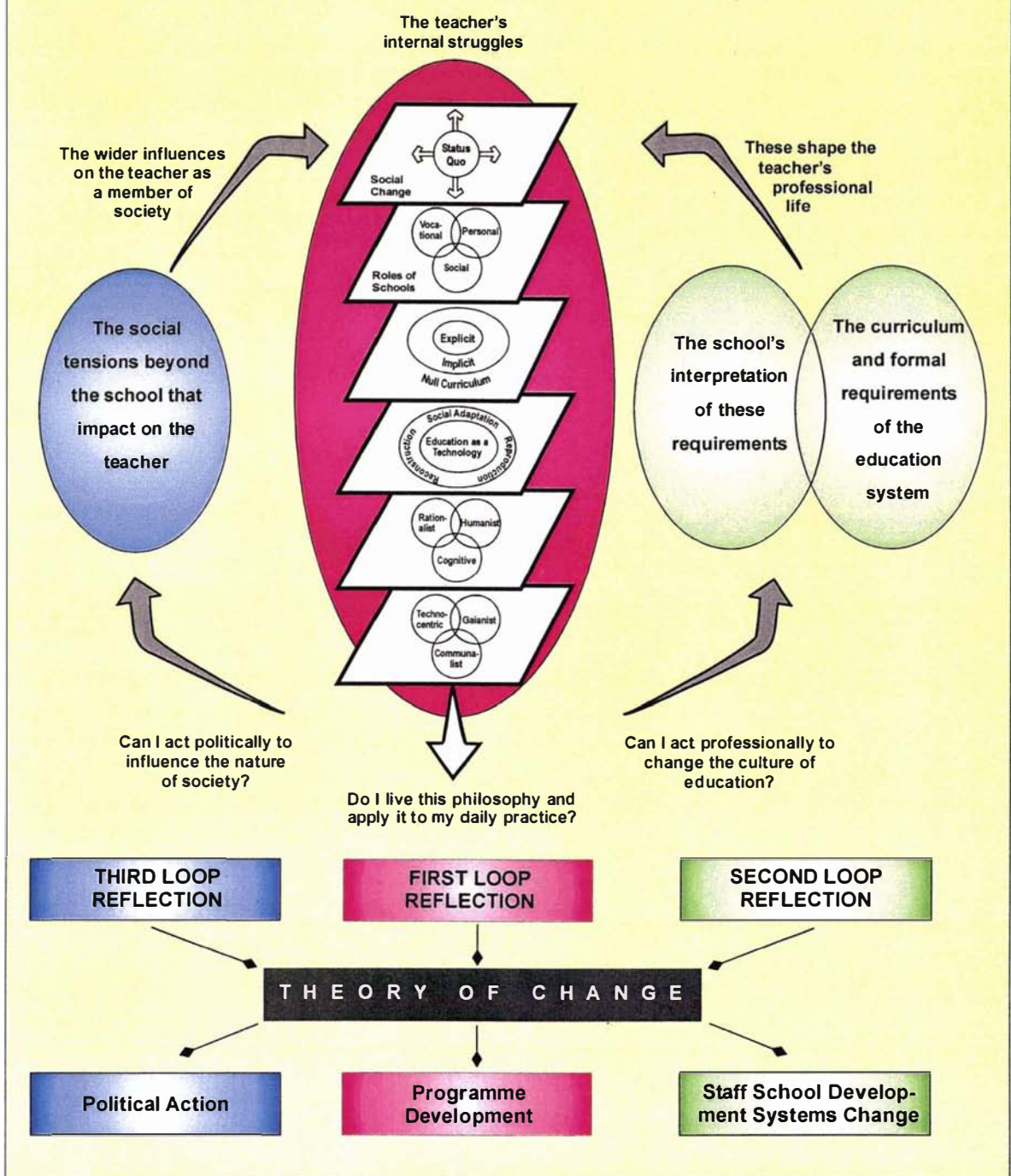


Figure 10.9 A comprehensive approach for CPBM

The use of the issues matrix is valuable in two ways. Firstly it should assist in identifying issues to be tackled, and secondly identify the level or levels at which this work needs to be undertaken. This then allows a course of action to be developed that constitutes the theory of change. This is one of the key features missing from the critical approach to environmental education as charged by Walker (1995, 1997) and Oulton and Scott (2000).

At first loop level this may involve improving practice through critical action research or other collaborative strategies. Institutional problems or constraints that arise will almost certainly have implications for school development and the literature on this subject may now be useful.

Earlier in this thesis it was charged that much of this literature is atheoretical. Robinson (1993) deliberately rejects wider social theories as unhelpful, instead embedding improvement criteria in existing institutional culture. Posch (2003) makes the same argument within environmental education. Within the process proposed here however, that charge can now be lifted because the 'framework for critical reflection' provides a theoretical underpinning that can inform school or institutional development. Constraints arising outside the school can be tackled through wider professional or political action.

A number of assumptions need to be emphasised in considering the use of the issues matrix for triple loop reflection captured in the diagram above. It is taken that reflection is incomplete unless all three levels are undertaken. It is also assumed that a theory of change will usually imply action at all three levels, although these may not all be pursued at once. Finally, the suggestions for change are understood to be contextually specific and are not intended to be definitive. This is true of the issues matrix as well but in a different sense. There may be issues of importance not included as layers within the matrix.

All the constructions within the matrix are representational but are proposed as crucial issues for consideration. What is central, besides the basic issues that must be addressed that are identified in the matrix, is the need for reflection at three levels that relate to the three levels of reality described in this thesis. It is also vital that this reflection be conducted using a negotiated framework of criteria that is informed by accepted understandings of the field, and that reflection leads to a theory of change pursued by collective and collaborative action where this is possible.

10.4 SUMMARY

The process described above provides a comprehensive and detailed way of thinking about the issues faced by environmental educators described and reviewed in this thesis and referred to as an impasse. Not all the issues that arise in the process are fully theorized here but the need for theoretical exploration is signalled. The issues matrix identifies a number of such issues and does not foreclose on the addition of, as yet unidentified, areas for further reflection. None of the issues identified within it are new and have all been considered in general educational theorising in the past. What is new is positioning them in a way that allows the compromises made on one set of issues to be related to other issues compromises, the application of a normative framework to guide decisions, and the imperative to consider how each issue is resolved at first, second and third loop levels.

This does several crucial things. It introduces curriculum and sociological theory to the field of environmental education in a useful way. It does so in a way that does not prescribe answers but invites deeper thinking on the issues in response to specific problems. It provides a way for integrating theoretical perspectives with improving practice, particularly through action research, without privileging theorists (practitioners may incorporate study into the reflective process as a source of theoretical background). It draws on both educational psychology and sociological traditions in a valuable way by identifying the levels at which each has application. It is informed by an ontology that acknowledges the subjectivities of peoples' lives but at the same time acknowledges the power relations and deeper causes that in part shape those subjectivities. Triple loop reflection and learning is central to this process.

This summary is a subjective response by the 'inventor' to his own 'invention'. It must be left to the reader to weigh the worth of these claims. Two tasks remain in drawing this thesis towards a conclusion. The first, undertaken in the next chapter is to review the process developed here against the wider environmental education literature and to respond appropriately. The second, undertaken in the last chapter, is to reflect on the process and to apply the thinking demanded to the impasse described in this thesis. It needs to be stressed in closing this chapter, that the suggestions made here constitute a device for problem solving and do not set out to prescribe general answers.

CHAPTER ELEVEN: Reconsidering the literature

11.1 INTRODUCTION

The purpose of this chapter is to conduct a review of the new theorising put forward in Chapter Ten by weighing this against the literature in the field. It is not intended in this review to delve in any detail into the complex causal mechanisms that might lie behind human exploitation of the environment. Nor is it intended to attempt to delineate the boundaries between first, second and third loop analysis or the corresponding domains of reality. A detailed analysis of the debates at each level of the issues matrix developed in Chapter Ten is also considered to be beyond the scope of this project. It is intended instead to respond to issues that arise in the literature that this new theorising needs to confront and to review that literature to consider, on one hand discussion that illuminates the work done here, and on the other hand, work that might be illuminated by it.

Two acronyms will be used within this chapter. The idea of Modified Problem-Based Methodology used so far will be subsumed under the title of 'Critical Problem-Based Methodology' (CPBM), to signal the defining difference from its parent (PBM), and its resistance to the criticisms that are discussed in this chapter. Within CPBM, the notion of triple loop reflection, using the issues matrix developed in Chapter Ten, will be summarized using the acronym, TEAM, standing for; Triple-loop Educational Analysis Matrix.

The starting point is to revisit the work of Oulton and Scott (2000) in detail. This work has been cited several times and seems especially pertinent because its critique draws on Robinson's (1993) work that has informed this thesis. Oulton and Scott (2000) also draw on the work of Walker (1996) who used Robinson's PBM in conducting her doctoral research. Given the similarity of the theoretical sources used, establishing the ability of the analysis developed in this thesis to resist this critique is of primary importance in establishing its usefulness. This is done in section 11.2.

The response to Oulton and Scott (2000) conducted in section 11.2, has limitations however. It does little more than counter their assertions because the concept of education *for* the environment, central to their argument, remains vague and contested. Because of

the significance of this issue, it is reviewed in detail in section 11.3 by applying triple loop reflection.

The chapter then proceeds to reconsider the literature in a number of steps. In the first of these, section 11.4, critical realism is briefly reviewed. A summary of the wider literature constitutes section 11.5. This contains a summary of recent reviews of the field. It then analyses the literature at each of the three levels used in this thesis. The review then examines material that could shed light on this approach. In section 11.6, recently reported examples of promising practice are reviewed. These are chosen because they provide practical evidence that illuminates the theorising developed in the thesis.

The implications that emerge from the chapter are summarised in section 11.7. This section also considers the light that has been shed on the propositions made in earlier chapters by the literature review. A final section, 11.8, addresses the issue of the faith in education as a response to the environmental crisis. It is concluded that this faith is difficult to justify. The idea of empowering teachers without reference to supporting change or action at the levels of material social reality, and to the deeper realities of cause, is seen as naïve in this light. These conclusions provide the setting for reflection on the educational impasse described in this research that is conducted in the final chapter.

11.2 CRITICAL THEORY HAS FAILED

11.2.1 Summarising a critique

That critical theory has failed is the tenor of the argument by Oulton and Scott (2000) in their review of environmental education, and this claim informs their call for a re-visioning of the field. They draw on the work of Walker (1995, 1997) and like her, draw on the work of Robinson (1993) that has informed the research central to this thesis. Since they use the same work in developing a different approach to the one I have taken here, responding to this critique seems a first step in establishing the value of the substance of this thesis.

Oulton and Scott (2000) consider that critical theory within environmental education has resulted in a theory-led approach to practice in which teachers and practitioners are constrained in determining collaborative responses to their own contexts and needs. They

imply that because of this, little has been achieved after thirty years of effort. They report on numerous suggestions for changes to teacher education, curriculum, and to the complex nature of goals for the field within the literature, but hint that these have had little impact on practice.

Oulton and Scott go on to cite Walker's (1997) review of the Environment and Schools Project (ENSI) activity in Australia. This was informed by the critical theorising of Fien (1993a), Huckle (1991, 1993), and Robottom (1987). Walker considers that the programme contained so many requirements that it was almost impossible for it to be successful. She argues that while critical theory provides useful analysis, it proposes no viable and practical strategies for social action and that "schools are structured in such a way that they cannot accommodate radical social change" (Walker, 1997, p. 157). Oulton and Scott (2000) cite Robinson's (1993) position that macro social theories have been unhelpful in solving educational problems and support her approach of micro-problem solving in schools.

In pursuing their critique, Oulton and Scott (2000) further emphasize the contested nature of environmental thinking and the conflicting ontological and ideological positions that inform these conflicts. They point out that while critical theory intends emancipation, the tendency of critical theorists to prescribe how that should occur contains a certain irony. They refer to Robinson's (1993) views that critical theory helps little because macro issues are of too large a scale for schools to address. Further, it fails to address the behavior of individual actors. It omits reference to powerful groups in its educative strategies and ignores issues of practical and organisational change.

Oulton and Scott (2000) are specifically critical of Fien (1993b), and of Huckle's (1993) linking of the categories, in, about and for the environment, with Habermas's forms of knowledge, practical, technical, and emancipatory. They claim this is an oversimplified analysis that privileges one view of environmental education and that education is much messier than these theorists admit. Oulton and Scott (2000) are also critical of Robottom and Hart's (1993) argument in favor of action research suggesting that this too privileges the critical position. They cite Connell (1997) in asserting the position explored in an earlier chapter, that empirical approaches need not be positivist or behaviourist. Oulton and Scott (2000) go on to support Payne's idea of "education for being for the environment" (Payne, 1995, p. 21). This teaches how we might act for the environment in a more socially affirming way. It is the general point raised by Oulton and Scott (2000), like Jickling and Spork (1998), that the idea of education *for* the environment has been

sloganned. In response they ask what action is appropriate in schools and whether schools can or should act alone on environmental issues. They suggest there are ethical limits to involving learners in such action.

In response, Oulton and Scott (2000) highlight the work on action competencies arising in Denmark (Jensen & Schnack, 1997) that they consider contributes to helping individuals towards democratic commitment to shaping society as participants. Oulton and Scott (2000) consider this a more flexible approach than that proposed by critical theory because it allows local autonomy and they link this with the intentions of Agenda 21 (UNCED, 1992). They go on to attempt to diffuse the 'paradigm war' by calling for flexible approaches, for people to do what they do well. They concede in closing though, that this is a clumsy, multi-paradigmatic and interdisciplinary approach, and that it will take time to develop and deliver its goals.

This is a comprehensive, well informed and compelling critique and it cannot be dismissed lightly. It asks us to consider whether critical theory has led us up a dead-end path. It has a weakness however. In terms of its own logic it cannot make concrete suggestions for progress since it calls for local solutions to problems and as such falls into something of the same trap as Walker (1995, 1997) of calling for new theories but providing none.

11.2.2 Responding to the critique

It is important to consider to what extent the proposals made in this thesis are able to resist the criticisms above. To a degree, the whole criticism can be dismissed, and although I will air that argument I do not intend to dismiss it. Oulton and Scott (2000) raise issues that I am confident that the approaches put forward in this thesis can refute without needing to sidestep.

The nature of the critique

The school curriculum contains an ideologically biased view of the world that is imposed on schools (Apple 1990; Giroux, 1988). The curriculum has not always been democratically derived and it does not encourage the democratisation of schooling or society. Teachers enact it because it is legitimated by laws and by the structures within education. In this light, the issue for Oulton and Scott is not an aversion to imposing tasks on teachers, but the legitimacy of the task being imposed. Their critique poses questions of the difficulty educators face in introducing a transformative social theory

(environmental education) into schools without the full weight of social legitimacy and they question whether transformative education is possible in schools. We need to remember that successive New Zealand governments have imposed a transformative neo-liberal restructuring on the country despite opposition, but were able to legitimate this. Similar patterns of change have occurred in other countries.

It is in order to support their lack of legitimacy, many environmental educators have turned to critical theory to inform their work (Huckle, 1999). It remains moot then, whether the Oulton and Scott argument is about environmental education or legitimacy, and I suggest that the latter is perhaps dominant. There are examples of liberal approaches to environmental education in the literature (Jensen & Schnack, 1997; Lavery & Smyth, 2003) and little evidence to support the view that these have been more successful than critical approaches. It seems that approaches that do not seek social change are acceptable in schools, but have no effect. Those that seek change are problematic, do not gain legitimacy, and also have no effect.

The CPBM approach used here can accommodate this tension however. At the level of deep reality environmental education is not supported. Because of this it is not fully supported by educational structures, a problem identified by Oulton and Scott (2000), although some accommodations are apparent. It is not part of the core social values system in which schools are embedded. Within western industrial culture, success is about being able to consume, to buy and to own. Environmental education not only challenges these values at the personal level, but also challenges some of the economic foundations on which 'our' welfare has come to depend. Environmental education fails because it is not incorporated into 'deep reality' and is therefore resisted, often at a subconscious level. Even people who espouse strong environmental values, and I include myself here, struggle as if invisibly constrained to follow through with the logic of their own convictions.

The invisible constraints of deep reality structure both our material reality and our daily lives in ways that make acting for the environment extremely difficult. In response to this, critical environmental educators have demanded action and change. Oulton and Scott, Walker, and Robinson resist these calls, but their arguments make no concrete suggestions of alternative strategies for change. Nor do they acknowledge that the lives of the majority of the world's citizens are undemocratically imposed upon by the over-consumption of the wealthy. In short they draw artificial barriers around their argument in favor of democracy. It could be argued that the Tbilisi Declaration has wider legitimacy than

national governments, and that failure to adopt it at national level reflects the narrow and undemocratic interests that most national governments serve. The Oulton and Scott critique could be seen as defending those interests from the challenges contained within environmental education.

Having raised these points I do not intend to dismiss their argument. I instead intend to work through the specific points raised by Oulton and Scott (2000) and show how they can be rebutted on their own terms by the proposals put forward in this thesis.

The response

There are three main points of substance to the critiques summarised above. The first is that the wider social issues posed by macro social theories are too large and are cognitively unmanageable. The second is that these approaches (particularly critical theory within environmental education) have not developed theories of change. The third is that schools are not vehicles for social change. Before dealing with these I wish to attend to a lower order but significant point raised by Oulton and Scott (2000) in framing their criticisms.

Oulton and Scott (2000) refer to Walker's view that the ENSI project in Australia did not succeed because of the formidable list of requirements to be met before it could be considered successful (Walker, 1997). These were associated with the critical position and included:

The recognition of a shared, community-based environmental problem which is solvable by school students;

School and parental agreement that the environmental problem will become the focus of the curriculum;

Committed teachers, school principal and community;

A preparedness on behalf of the teachers, students and community to confront their own values and the values held by others;

A teacher with specific expertise in relation to the problem, or an outside expert.

(Oulton & Scott, 2000, p. 490)

When this list is examined it can be seen to be seeking three simple things; that the problem is realistic given the circumstances, that the expertise is available to deal with it, and significantly, that the project is supported, that is legitimated, by the whole community of interest involved. This requirement to legitimate the activity with the community, school authority, teachers and students and to centralise it within the curriculum is the essence of success and is crucial to a democratic endeavor. Rather than being seen as formidable (acknowledging that this is not easy) it could be seen as basic. It can be noted too that this legitimacy is sought at the three levels that are illuminated by the triple loop reflection called for in this research. This is the difficulty presented by *environmental education*, not by the ENSI project.

Support from parents and community could be seen as attending to the deep social reality in which the school is situated. Centralising the issue in the curriculum and seeking commitment from the principal and other teachers supports the initiative within the material structures of education and the school. Finally, seeking participant support, expertise and a realistic problem, attends to the issues of the daily empirical reality of those involved. All these are required in a school that is a legally constituted agency of the state and are proper behavior in a democracy, exactly the approach Oulton and Scott (2000) support.

It would seem that they have not been able to analyse the situation in the way the approach put forward here allows. This example also lends weight to the proposal above that the central issue in developing environmental education is one of legitimacy.

This example also provides an entry point to the wider social issues that are seen as cognitively unmanageable. The use of three separate levels of reflection and theorising allows issues to be usefully broken into smaller parts. This requires attention to three simple questions: What do we do at classroom level? What do we do at school wide level to support that? What do we do beyond the school to ensure it happens smoothly? I claim that Robinson's (1993) PBM approach should be doing this anyway, and if not, the initiative would be improperly described and theorised. Within CPBM however, it has been suggested that reflection and action needs to be guided by a normative framework that all participants contribute to. It has also been suggested that this be derived from the goals for environmental education, that is, from wider macro theorising. PBM works only within the cultural norms of the school. The approach suggested here has the capacity to reduce larger problems into smaller parts that are manageable and provide external

guidance to practice. Failure to address issues at all these levels seems simply to fail to adequately describe a problem and thus ensure an inadequate solution.

Making issues cognitively manageable also assists the process of developing a theory of change. Using the theoretical matrix central to the TEAM approach, individuals are asked to clarify a range of educational issues. This is first loop reflection. Responses can then be negotiated collectively at the institutional level. In doing this, people are able to reconcile their own position with the institutional culture. Resolving the issues contained in the layers of the matrix collectively, at institutional level, constitutes second loop reflection. Finally, the issues need to be weighed up against the views held in the community in which the institution sits and the degree of similarity and difference considered. This is third loop reflection. Three loops of reflection suggest three levels of action: Individual or collective action at the level of practice, collective action at institutional level, and individual and collective action at the political level.

When this reflection has been done, points of difference and difficulty become micro problems to be addressed. For example, a potential problem about how the community might react to children exploring a controversial local issue could lead to a consultation process involving school and community members. Further, the issues matrix assists the identification of different assumptions or positions that are in tension and logically leads to ideas for addressing them. These become theories of change.

Thus, theories of change emerge in response to the problems identified at each level. These smaller problems are cognitively manageable. The approach suggested here shows the potential to diffuse the major criticisms made by both Robinson (1993) and by Oulton and Scott (2000). Some problems are not solvable within the school however. The approach above implies that the goals of environmental education can be accommodated within the formal curriculum, which is the case in New Zealand. If they cannot, third-loop action at a political level would be needed to ensure the structural changes necessary. The TEAM approach provides guidance as to the structural changes needed. This is not addressed by Oulton and Scott (2000). The approaches advocated here begin the process of theorising change that is claimed is not currently provided by critical theory.

The issue of level

The third point that arises in the critique being reviewed here is the argument that critical theory provides no viable and practical strategies for social action, and that “schools are structured in such a way that they cannot accommodate radical social change” (Walker,

1997, p. 157). It is interesting that Walker, and Oulton and Scott, in building on her work, identify structural issues as constraining environmental education practice but do not engage with these, instead retreating to the micro arena and making vague calls for new theories. These constraining structural issues can be confronted using CPBM and the TEAM approach by developing strategies to address problems at the appropriate level of reality. As suggested above, structures within the school and beyond it can be identified using the TEAM approach within CPBM and a theory of change for addressing them developed. The role of schools is education, not political activism, although they might be linked. The flaw here is to fail to realise the linking mechanism. That is, the hope that learners as future citizens, will contribute to change, as Jensen and Schnack (1997) argue. Fien and Trainer (1993) too point out that the purpose of action is educative.

While this notion of the level at which arguments are located is elaborated in the next section, the central contention here is that the strategies put forward in this thesis do provide some of the theoretical answers called for by Oulton and Scott (2000) and Walker (1997). Rather than subscribing to their view that critical theory has failed, however, I am suggesting that it has been inadequately developed at an operational level and I have proposed a framework for doing this. I thus suggest that the approaches developed in this thesis not only resist the first two criticisms developed by Oulton and Scott (2000), but also provide some of the ways forward that they called for.

The third criticism, that schools are not vehicles of social change, is more difficult. It turns on the notion of schools acting *for* the environment. This has come to mean taking 'action' in some form. Much of the contention surrounding this *for* the environment issue can be resolved using triple loop analysis. Whether or not the demand for action *for* the environment by critical educators has constrained the development of practice is an issue beyond the scope of this thesis. Resolving some of the confusion relating to this issue in the next section adds weight to the argument for the triple loop approach advocated here.

11.3 EDUCATION FOR THE ENVIRONMENT

11.3.1 A summary of the debate

The longstanding debate about environmental education *for* the environment is very briefly summarised as follows. By the 1980s there was a consensus of opinion, particularly among Australian environmental educators of critical persuasion, that without an action component *for* the environment, the goals of the field were not being met (Robottom, 1984; Greenall, 1987; Fien, 1988). Jickling (1992) challenged this position on the grounds that education should not be *for* anything but should provide learners with the tools and skills to unpack philosophical positions and determine their own courses of action. This argument has been challenged by Fien and Trainer (1993) as being naïve, and as failing to acknowledge that education is never neutral. Fien and Trainer argued that action *for* the environment is required to redress the current paradigm of environmental exploitation. Jickling and Spork (1998) presented a more subtle argument, that the calls for action *for* the environment have become sloganised and as such obscure what is meant. Jickling (1999) developed the argument that environmental education in the form of education for sustainability had become blurred to the point that protagonists in the same debate invoke the concept from opposite perspectives. In a more recent work, Jickling (in press) has begun to explore the difficulty of developing educational programmes that disentangle the values positions inevitably involved in any educational activity. As has been mentioned several times, Oulton and Scott (1999, 2000) and Walker (1995, 1997) have joined this debate. I argue that much of its substance can be clarified if the debate is reviewed at the three levels proposed in this thesis.

11.3.2 Clarifying the issues

Two separate issues need to be identified as a preliminary to this argument. The first concerns values. I have argued (Chapman 2004) that the real values that drive our society are economic while our espoused values are 'human'. Human values, and I include care for the environment under this heading, are over-ruled by economic imperatives. Real commitment to human and environmental values challenges our core economic values and is often seen as indoctrination as a result. My argument is that values are only noticed if they are in conflict with the dominant paradigm. Thus, if we lived in a society that genuinely valued human dignity and environmental protection, there would be no such thing as environmental education. It would be implicit in all social activity. This view

adds weight to the legitimacy argument developed previously; that what is at issue in many of these debates is the legitimacy of the values position presented. The key point here is that values are only noticed if they are different and thus contain a challenge. Much of the environmental education debate is involved with accommodating that challenge. My response to it has been to try to bring the normative positions that inform our work into explicit focus and to include debate about these in the democratic or educational processes. This is consistent with Jickling's (1992) argument as will be elaborated.

The second issue concerns power. The defensibility of an action is often dependent on the power relations of those involved. In a teaching situation, the teacher has power over learners that can be abused. It is generally considered to be a breach of the teacher's role to impose a view onto students, yet the message systems of schooling contain values and positions that are imposed and not open to critique. On the other hand, society accepts political actions 'up' a power gradient that are unacceptable 'down' the power gradient. For example, a gathering of citizens at a meeting of state leaders or at parliament is a legitimate protest. A state presence (the police) at a legitimate meeting of citizens is likely to be seen as intimidation. It is more difficult for the powerless to intimidate the powerful. A focus on these concerns of values and power, along with the notion of triple loop analysis, helps illuminate the discussion relating to education *for* the environment.

11.3.3 The argument in detail

Jickling's (1992) argument proposes that education should be neutral and expose all positions to scrutiny. It should provide the philosophical tools to analyse arguments so that learners can make their own decisions on rational grounds. This statement is a values position that reflects the core tenets of liberalism (Postma, 2002) and demands critique on a number of grounds. Firstly, it ignores the fundamentally political nature of education and curriculum. Secondly, decision-making is seldom completely rational, a point made by Huckle (1983) and dealt with in depth by Saul (1997). Saul argues that rationality takes different shapes and pursues different directions depending on the assumptions and values that inform its use. It is not therefore, an inevitable pathway to enlightenment. Jickling's argument is informed by liberal assumptions that are not made clear. Finally, no education is ever values free, as he acknowledges in a later argument (Jickling, in press).

Fien and Trainer (1993) challenge Jickling (1992) on other counts. They consider his position fails to acknowledge issues of power or the related role of schools as sites of social reproduction. They point to the values laden nature of environmental education and propose Kelly's (1986) strategy of committed impartiality as a response to values tensions. They suggest a framework for critical education in which learners:

Identify and challenge the assumptions in all positions;

Imagine, expose and critique alternatives to their own position;

Question the influence of context and the social interests served by all positions;

Use the values of ecological sustainability, justice and democracy as criteria in the evaluation of all positions; and

Adopt a reflective skepticism to their own and other people's ideas and actions.

(Fien and Trainer, 1993, p. 16)

It is difficult in analysing Fien and Trainer's (1993) response to Jickling (1992) to determine the precise points of difference between the two positions. While Jickling's view may seem naïve, the framework above requires the challenging of all assumptions coupled with skeptical and reflective self-critique. This seems to be implicit in Jickling's (1992) argument. Fien and Trainer go on to criticize Jickling's narrow view of education, that is, the development of the 'autonomous thinker'. They propose a wider definition but do not provide one. Their position is clarified by implication in a later section of their work when they discuss the role of environmental education. Here they propose that the endeavor is not actually about making changes because this is not possible without widespread support. While initiatives such as sustainable gardens or entry into electoral politics are important, they should only be seen as educational strategies. Serious political engagement, or attempts to facilitate structural changes that might support more sustainable behavior, are seen as largely accommodationist tinkering and a distraction from the central task of 'educating' the public for a more substantial social change.

Here Fien and Trainer expose themselves to several substantive criticisms. Firstly, like Giroux (1988), they ignore the vexing issue that while structural change cannot occur until

it has wide public support, present structures act to maintain the status quo and this is unlikely to change until the structures are removed. This is exactly the argument that causes Robinson (1993) to make the point that critical theorists have not been of help in addressing real educational problems. It is also the basis for Oulton and Scott's (2000) assertion that this approach simply replaces one ideology with another, although Fien and Trainer would no doubt counter this by saying that within a critical framework, their own position, like all others, is exposed to examination. Their approach also lacks any theory of change.

What Fien and Trainer (1993) do provide in their list of points above is an explicit statement of values that should inform environmental education; ecological sustainability, justice and democracy. This challenges the liberal position that Postma's (2002) argues does not prescribe 'first order' values about how people should behave. If this proposition of values is open to critique, however, it should be acceptable to the liberal position. Fien and Trainer's objection is to the existence of implicit and hidden values in education that are not so exposed.

It is at this point that triple loop analysis proves useful in untangling much of this debate. Having disputed the worth of micro level initiatives, except as educational devices, and similarly rejected efforts at structural change, it is clear that the Fien and Trainer argument is situated at the third loop level. This identifies their efforts as an attempt to change the nature of deep reality and, by this means, bring about change at all levels. This is overtly political activity that they label as education. Thus, the central debate here arises from three points of confusion. Firstly, the main protagonists are talking about engagements with different levels of social reality, but using the same vocabulary to do so. The second is the widely differing views of what constitutes education, as Fien and Trainer acknowledge. The third issue relates to the values inevitably buried in any educational endeavour.

Jickling's (1992) position is incomplete in that it ignores the way education is shaped by material structures and the hidden hegemonic messages buried in these, along with the forces in deep reality that maintain them. The issues matrix proposed here is intended to assist engagement with these issues, especially the values and assumptions buried in the structure of the curriculum and in the implicit curriculum. On the other hand, the Fien and Trainer argument, while deliberately eschewing second level structural change as tinkering, simply fails to grapple with the hegemony of schools that they specifically mention. It shows an implicit understanding that deep reality shapes the other two levels

and that changes at this third loop level will precipitate changes at the level of material social reality and subsequently at the level of empirical social reality. While explicitly identifying the socially reproductive role of schools, they exhibit the faith that 'education', in influencing the thinking of individuals, will eventually have the cumulative effect, when enough citizens are 'educated', of shifting the core social values that contribute to deep reality. They thus implicitly understand the interdependence of the three levels of social reality but only partially confront them. Having lacked the theoretical framework to clarify the discussion Fien and Trainer (1993) have obscured the issues and exposed themselves to the criticisms identified above.

The first substantive conclusion here then is that triple-loop reflection informed by critical realism allows this debate to be unpacked so that the elements within it can be considered with improved focus. The second conclusion remains as an assertion, that attempting to bring about change at one level of social reality in isolation is highly unlikely to be successful because it involves such an obviously incomplete description of the problem. It is not the intention to debate all the issues that have arisen here but it is appropriate to make some attempt to demonstrate how the debate could be resolved.

Some ways forward

The view of education proposed by Jickling could be enriched by the 'framework for critical education' proposed by Fien and Trainer (1993), and Kelly's (1986) advocacy of a committed but neutral stance to controversial issues complements this approach. Education remains gripped by a multiple paradox however. Teachers inevitably transmit values without being aware of it. The curriculum itself contains implicit values in both its content and structure and is politically constructed. These sets of values, those intended and those unintended, are often in tension. Despite that, Jickling's view is one I support. Schooling in a democracy should not be coercive. In adopting a critical pedagogy, I suggest that environmental educators use the TEAM approach to reflect on, and reconcile, the multiple message systems in which they participate. They also need to engage with educational structures at second-loop level in order to enlarge the spaces for developing that critical pedagogy. The campaign Fien and Trainer discuss appears to focus on political activity at third-loop level aimed at deep changes in social values. This is also an appropriate and important activity. Whether it is called education, or perhaps, which parts of it are educational, and whether it is appropriately pursued in schools are what is at issue.

The values paradox remains nevertheless, and central to this is the issue of when is it acceptable for teachers to 'teach' values, as opposed to considering them? I suggest there are two conditions when this is acceptable in schools. The first is when the values are not problematic and are thus not challenged because they are largely the mainstream values espoused by society (I say espoused because they may not be actualised). The second is when the values are problematic but are mandated in some formal way, as adherence to the Treaty of Waitangi has been in the *New Zealand Curriculum Framework* (Ministry of Education, 1993a). Outside of these two conditions, a teacher is at risk. The 'safe' and depoliticised (Greenall, 1987; Lousley, 1999) initiatives that are commonly seen, such as those described by Bolstad et al. (2004), remain within those safe bounds. When they do consider initiatives of greater depth, teachers perhaps sense the potential for danger and their inability to respond to it, and stay on the safe ground. Such work needs to be supported at deeper levels. The issue is not just the legitimacy of any particular values position, but returning to Jickling's (1992) argument, it is not acceptable in a democracy to impose a position down a power gradient, to coerce pupils within a school without a formal mandate. Fien and Trainer's view of education is inappropriate in schools by this argument. On the other hand, the type of political 'education' outside of schools that Fien and Trainer (1993) speak of involves interactions between citizens of equal status or political advocacy up a power gradient. These are acceptable activities within a democracy. Clarification of these three issues, legitimacy, power and the three levels of activity, thus resolves much of the debate in the argument addressed in this section. I would add that action alone is not necessarily *for* the environment (Chapman, 2004). I would assert however, that a sound critical pedagogy that properly analyses environmental issues, as Jickling and Fien and Trainer advocate, does act *for* the environment. I would also suggest that the ability to consider the issues separately at each level is the key to this resolution.

11.4 CRITICAL REALISM

This thesis is not primarily about critical realism although it is the ontological approach that has provided the impetus for the key suggestions arising. It is useful to remember that Baskar's work was seen as building on Popper's, the latter being the first rather than the last word in opposing the distorted positivist view of the world (Corson, 1999). Popper viewed his work as evolutionary and, according to Corson, Bhaskar's work

progresses on Popper's project. Bhaskar (1989) specifically engages with the social world with the purpose of "reclaiming reality" in order to pursue an agenda for emancipatory social practice.

Corson's (1999) review of Bhaskar's work provides a succinct overview that is particularly relevant to this thesis. Bhaskar "includes as real entities, the properties of the social world" (Corson, 1999, p. 70) and includes in this the accounts people provide in explaining events and seeking to effect change. Following from this, the task of research is to show the existence of causal mechanisms and to understand the ways that these affect the social world. Bhaskar (1989) considers that change can only occur when the structures that shape society are understood, and this conclusion has been seen to arise logically from the ontological position provided by critical realism. That is, if it is taken that the empirical domain (empirical social reality) is shaped by the actual (material social reality) and this in turn is driven by causes and mechanisms described as deep social reality, then any attempts at change that do not take account of these 'causes' are trivial. This argument supports my contention that all three levels of reflection are required for accurate problem description within CPBM.

Bhaskar (1979) also points out the centrality of language in the way we understand the world and this notion of the way language mediates our understanding is a theme that will recur in this chapter. In reviewing these ideas Corson (1999) emphasises Bhaskar's view that the world cannot be rationally changed unless it is adequately interpreted to begin with, and that this starts with the accounts of those acting in it. These accounts are emergent phenomena that really exist, and provide the best guide to understanding the mechanisms that shape peoples' lives. A programme of change follows as "a morally binding response for policy makers" (Corson, 1999, p. 72). The path followed in pursuing the present research is remarkably parallel to these arguments, beginning with the realities of teachers and seeking through them to understand the forces at work that shape them, in order to develop strategies for change. All of this is informed by the moral conviction that the ways in which human beings currently treat each other, and the planet on which we depend, are unjust.

In more optimistic tone, Bhaskar suggests that, "society is both an ever-present condition and continually reproducing outcome of human agency" (1989, p. 92). A conclusion from this is that social reality can be changed by interrupting the cycle of social reproduction. While the concept of 'material social reality' has been used here in discussing the organisational arrangements, laws and regulations, culture and values that shape our

lives, Bhaskar observes that “some excavations of the institutional matrices within which such systems are set” (Bhaskar, 1986, p. 20) is required in order to understand these realities.

The issues matrix seems coincidentally coherent with Bhaskar’s work. It is also uncanny that the whole process of this thesis fits so comfortably with Bhaskar’s intentions in pursuing his work. It must be noted however, that it is not intended here to pose as a scholar of his work. It has been used as a sensible approach for understanding the world and avoiding both the ‘distortions of positivism’ and the endless relativism of post-modernism. References to Bhaskar’s work can be found in the environmental education literature but none reflect the intent or the possibility that his work provides that has been discussed in this section or in this thesis in general.

The catalyst for incorporating the critical realist ontology into the theoretical deliberations of this thesis was the suggestion by Plant (2001), that it provided a common sense approach to environmental education. Plant reflected on the approach in the context of his interactions with one student and did not theorise its potential beyond the micro context of his own teaching. I have only found one other direct reference to critical realism within the environmental education literature and that was by Huckle (1993). Huckle devotes less than a page to explaining critical realism and is ambivalent about attributing cause to the ‘real domain’, discussing it in terms of structures and processes. Huckle builds on Habermas’s notions of the knowledges of technical interest, of practical interest and of emancipatory interest by linking these with the empirical-analytical sciences, the hermeneutic sciences and the critical sciences respectively. Huckle (1993) argues that only critical science engages with the real domain. Interestingly, he suggests that all three sciences (levels) are needed in developing education for sustainable development as a vehicle for ecologically sustainable development.

Huckle’s (1993) argument puts it that humans do have agency but that poor decisions arise from false or distorted interpretations of the world and that through critical science and praxis we can achieve individual freedom and self-determination. Huckle (1993) argues that the forces of production limit and direct, rather than determine political and cultural development and social apparatus. He identifies education as part of the apparatus that serves to socialise the young and transmit ideology, points not acknowledged in Oulton and Scott’s (2000) argument. Participatory action research is proposed by Huckle as the methodology for understanding the complex links between levels of reality.

Huckle's (1993) work draws on Johnston (1989), whose discussion of critical realism explores the distinctions between physical and social Geography. In doing so, Johnston identifies natural scientific realism as dealing with fixed mechanisms and events, and social scientific realism in which mechanisms and events are creations and are changeable. In discussing the domains of critical realism in physical and human terms, as distinct from natural and social as discussed here, he suggests that humans interpret and respond to both, and that human activities affect all levels of reality except the domain of physical reality (deep natural reality). His point, however, is to predict the world and he makes no reference to the possibility that if human activity was informed by an ethical values structure it would shape itself in different ways. While acknowledging that some versions of Marxism are realist, Johnston is clear that realist social science need not be Marxist.

A critical realist perspective then, influences the socially critical approach to environmental education proposed by Huckle and by Fien who has worked closely with him. It is not applied in the form of triple-loop analysis however. Relativist positions common in the field are not incommensurate with critical realism but, seen from within the critical realist ontology, engage with the world in an incomplete way and do not acknowledge 'real' cause. Although they emphasise action research, Johnson (1989) and Huckle (1993) note the need to draw on all the sciences in describing this complex reality. Thus, while a critical realist perspective can be found within environmental education, it has not been presented in a way that assists the development of improved understanding on any significant scale.

Action research has been widely advocated in the environmental education literature. I have suggested that CPBM can draw on a range of research methods, including action research, with some provisos. It is essential in terms of the suggestions made within this thesis to look at an educational problem in terms of the way it is understood by those directly involved in it. It is also necessary to understand the constraints in which the problem is set, such as the imposed curriculum. What seems important, rather than the methods used, is to critically examine the nature of the information gathered and to be clear about both its significance and its limitations. In short, we need to be clear about the level of reality it is seeking to describe. It is impossible, I suggest, to adequately describe reality by limiting the search for information to any one method, especially when the fact that social reality is shaped in part by natural reality, as Bhaskar (1975) argues, is considered.

CPBM is informed by a cautious epistemology that requires that all knowledge claims be carefully examined and tested, and that the values and positions that inform them be similarly exposed to scrutiny. Failure to do this risks an inadequate description of the problem and severely limits the worth of suggested responses. This is the criterion of improbability discussed by Robinson (1993). Seen in this light the paradigm wars discussed here and elsewhere might be seen as the defense of incomplete descriptions of reality as complete ones. That is to say, the proponents of particular methodological positions sometimes fail to see alternative approaches as describing different aspects of reality.

This is not to consider that the critical realist position itself provides a definitive description of reality. It is to suggest that it provides a better one than the alternative positions that, on one hand, the world is as we experience it, or on the other, that it is purely a cognitive construction. Both these positions have failed to provide answers to the challenges of environmental education thus far. Like all the other suggestions that arise in this thesis then, the critical realist position is put forward here for further examination and discussion.

11.5 THE WIDER LITERATURE

11.5.1 Introduction

This section takes a wider view of the literature in the light of the theorising developed within this thesis. The task is difficult because this theoretical overview could review nearly everything that has ever been written from a critical realist perspective. In order to limit the scope the following approach is taken. In section 11.5.2 a brief summary of three recent literature reviews in the field of environmental education is undertaken in order to position the research here within the field in a brief but comprehensive way. In section 11.5.3 a further brief analysis of the field provides a different perspective on the research by considering how what has been published links with the micro, meso and macro levels under discussion. In section 11.5.4, initiatives that overlap the theorising done here in specifically identifiable ways are reviewed. In section 11.5.5, work that expands on the understandings developed so far is considered. As is implied in this introduction, and in the preceding sections, there is nothing that emerges in this review of the literature that considers the field in the way proposed in this thesis.

11.5.2 Previous literature reviews

There are three recent reviews of the literature in the field that will be briefly canvassed here. The first of these was released in April 2004, by the New Zealand Ministry of Education. Entitled, *Environmental Education in New Zealand Schools: Research into current Practice and Future Possibilities*, this report provides a summary of the New Zealand situation. It resulted from a research contract commissioned by the Ministry of Education and undertaken by the New Zealand Council for Educational Research (NZCER) in conjunction with Waikato University. It was conducted between June 2002 and May 2003. The research team included Bolstad and Baker from NZCER, and, Eames, Cowie, Rogers, Edwards, Keown, Barker, Harlow and Coll from the University of Waikato. The report consists of a summary volume (Bolstad et al, 2004a) and three supporting volumes (Bolstad et al, 2004b, 2004c, 2004d) detailing the three main aspects of the study, comprising four hundred and thirty five pages in total.

Sadly, given the effort that was required to produce this work, it was guided by limited terms of reference and contributes little to this thesis. It demonstrates the paucity of good practice in New Zealand and suggests that teachers are in need of materials and support, but fails to subject many of the areas covered to deeper analysis. Further, there is an assumption, not supported by the wider literature, that addressing the 'Aims' of environmental education identified in the *Guidelines* (Ministry of Education, 1999a) is a sufficient response to the environmental education challenge. The 'gaps' literature, that addresses the problematic links between attitudes and knowledge and behaviour, is not mentioned. The literature review is narrow in scope and there is an absence of critical commentary. The recommendations stop short of suggesting that environmental education should be part of the formal curriculum.

The second review to be considered here is by Rickinson (2001). Over 100 pages in length and citing around 150 sources, it canvasses learners' knowledge, attitudes, and behaviors, learning outcomes, perceptions of nature, learning experiences, and their influence on adults and children. The studies reviewed are largely quantitative, almost exclusively at the micro level, and of only minor interest to this thesis.

Subsequent to the release of Rickinson's (2001) work, a further issue of *Environmental Education Research* focused on the value of, nature of, and strengths and weaknesses inherent in both Rickinson's (2001) work, and in reviews of research in general, noting

their partiality and the conflicting purposes they may serve. Rickinson (2001, p. 306) acknowledges weaknesses in his approach and the quantitative nature of the evidence base on which he drew. What is most interesting to the current project is the commentary that has followed this work. Rickinson (2003) calls for a greater number and variety of such reviews. Dillon (2003) explores the gaps in the review, Sauv  and Berryman (2003) delve the referential framework adopted by Rickinson (2001) and question other aspects that could have been explored, while Marcinkowski (2003) suggests that utilising a team approach to such projects would assist in addressing some of the issues relating to breadth of focus and interpretation.

Placing Rickinson's (2001) review in a wider perspective, Reid and Nikel (2003) question the political dimension of research and what is put forward as legitimate, rational and worthwhile to and through research. They point out that the Teaching and Learning Research Programme of the United Kingdom's Economic and Social Research Council, with which Rickinson's work is associated (Scott, 2001), aims to support research leading to better outcomes for learners in education and training. It is the largest state sponsored educational research initiative in Britain, and deeply embedded in the assumptions of mainstream educational thinking. Reid and Nikel cite Sterling's (2001) critique of the current educational paradigm, suggesting that, by Sterling's argument, research conducted under this umbrella is unlikely to challenge "the technocentric, mechanistic, modernist and managerial agendas prevailing" (Reid & Nikel, 2003, p. 151). It is thus incompatible with the educational transformation urgently required by the imperative of sustainability for which Sterling (2001) argues. The review has much in parallel with the New Zealand report above. Like the New Zealand research report, Rickinson's (2001) review is embedded in the assumptions of the current educational paradigm and lacking the wider analysis called for in this thesis.

The third review, (Hart & Nolan, 1999) takes a much more comprehensive approach, reviewing research firstly on methodological criteria, and then on the basis of particular issues. It makes a number of points relevant to this thesis. In relation to the reviews mentioned above, the authors note a number of projects, funded by governments that strive, "to legitimize new (and old) policy developments and implementation plans" (Hart & Nolan, 1999, p. 20).

Although five years old, this review is heartening to read in the light of this thesis, confirming or supporting several significant points. Hart and Nolan (1999) note a continued emphasis on education *about* the environment and ongoing debates on

education *for* the environment or sustainability. Another point made is the number of initiatives that are dependent on a single person and that fail to persist if the enthusiast leaves. Related to the effort required to maintain that enthusiasm, they cite a number of studies documenting widespread teacher concern regarding support on issues including funding, in-service training, preparation time, outdoor facilities, along with teacher knowledge and locus of control. They note that in many cases the research methods used appeared insufficient for the task of understanding the complexity of the issues. All of this resonates with the concept of institutional inertia proposed in my research.

In touching on the rhetoric-reality gap, Hart and Nolan (1999) draw attention to the need to consider the systemic limits faced by teachers, along with institutional structures and the ontological context, assumptions and values involved when advocating approaches to environmental education. They also mention the complexity of the links between beliefs and action, noting "multiple belief structures existing simultaneously" (Hart & Nolan, 1999, p. 28) and note that the disparities between these are not resolved by short-term courses for teachers. This too is the experience of my research. They also comment on the number of discussions that appear to be searching for the 'missing ingredient' in the way environmental education is structured or delivered. There is also very little on values and an absence of mention of any wider scale analytical approach of the type I have proposed here in Hart and Nolan's (1999) review.

This review thus confirms much of the data arising from teachers in this thesis and also points to a number of gaps and problems that I suggest the theorising here has the potential to address. In particular, this thesis provides an improved way of looking at the field that addresses complexity and analyses deeper causes as well as systemic and organisational issues. It also confronts the ontological perspectives that inform these, an issue that Hart and Nolan (1999) suggest as overdue for attention. Hart and Nolan's work also provides support for the way this thesis has been undertaken. They suggest that:

"challenging the taken for granted assumptions and myths underpinning programs and practices in environmental education is a first step towards developing new theory-practice relationships".

(Hart & Nolan's, 1999, p. 42)

They advocate support for teachers in their quest to examine their beliefs, and engagement with issues of methodology, epistemology and ontology, as well as the examination of underlying predispositions and assumptions. They call for a search for methods that

assist in reshaping the goals of education. I suggest that the work of this thesis, and in particular CPBM and the TEAM approach have a useful contribution to make in this regard.

11.5.3 Micro, meso and macro level analyses

The micro level

Reviewing the literature from the frame of reference of this thesis involves, in this section, considering the nature of the material when it is viewed using the three ontological levels that have been discussed here. This must be succinct and is limited to illustrative examples. There are hundreds of micro level research projects as the reviews above demonstrate. Most use quantitative and behavioural approaches that have been criticised throughout the 1990s as Hart and Nolan (1999) note. This sort of work is of little interest here, partly because, as Huckle (1991) observes, it does not address cause. It is also the predominant approach in an endeavour that Scott and Oulton (1999) consider has had little impact. This section therefore focuses on reviewing macro and meso-level approaches to environmental education.

The macro level

The work of Fien (1993a) is a prominent attempt to develop a macro picture of environmental education. He develops a critical curriculum theory that was discussed in part in section 11.3. This theory introduces the notion of teachers as transformative intellectuals who can adopt a language of possibility in confronting environmental issues (Aronowitz & Giroux, 1985, 1993; Giroux, 1985). Fien also draws on Giddens' (1981, 1984) theory of structuration. The argument is that apparently constraining structures may not be as resistant to change as they appear, and educators may have considerably more agency in changing these than they believe. Other than challenging environmental education researchers to elaborate the structure/agency relationship through critical praxis however, there is little to assist practitioners in moving toward this critical approach.

In contrast to Fien's theoretical argument, Sterling (2001) provides detail of his vision of a sustainable future. He reacts to the technical nature of education by calling for first, second and third order learning. While these have some similarities with the ideas proposed in this thesis, these are superficial. Sterling's first order learning occurs within

accepted boundaries, second order challenges assumptions, but he is vague about third order learning, contributing only that it occurs at greater depth.

A further point of interest is Sterling's (2001) acknowledgement of the role of schools in developing the citizen, the worker and the person. He sees the first of these as a socialising and reproductive function, the second as vocational and the third as the liberal function. He proposes the need for a fourth function, that of transformation. He acknowledges that this simplicity belies the depth of tension and complexity that exist between these functions but confuses a number of theoretical ideas in pursuing this argument.

The development of the person, the citizen and the worker, have been proposed in this thesis as reasonable expectations of a schooling system that may be, but need not necessarily be, reproductive. That depends on what notion of each is proposed. The issues matrix provided in Chapter Ten separates the consideration of this set of tensions from a discussion of what purposes education should serve and the consideration of the implications for the reproduction or transformation of society that these imply. Sustainability is not just about reconciling these the four functions Sterling (2001) identifies, but about considering a far more detailed and complex array of tensions and developing an agreed normative framework for evaluating contesting claims. Sterling's argument, though interesting, lacks detail in this area. He notes a lack of official commitment to change, but aside from suggesting that change must occur in small steps, provides little theoretical material to assist the project. This is a general criticism of macro-level theorising that is reflected in both these examples.

The meso level

Although by no means as common as micro level theorising, there are a number of discussions in the field that have a meso level focus on organisational change, although this is the most difficult level to categorise. Many of the discussions have implicit faith that society is committed to dealing with the environmental crisis but has not yet found the administrative recipe. The clearest example of this comes from Lavery and Smyth (2003).

They provide a detailed analysis of attempts to initiate Education for Sustainable Development (ESD) in Scotland. This, they summarise as marginalised by other priorities and falling funding. They note that while the initiative received a flurry of initial support at its launching, there was little evidence that the policy achieved any lasting effect. This

is an all too familiar story, reminiscent of commentaries by Elliott (1995) and Greenall (1987). In describing the lack of a clear lead from government and increasing fragmentation of effort, Lavery and Smyth lament:

It is assumed that, in a society that recognizes the importance of sustainable development, a well-argued case for a well-structured policy on ESD will prevail. Sadly the progress of SDE in Scotland does not support this assumption.

(Lavery & Smyth, 2003, p. 377)

I would suggest the flawed assumption here is that the espoused position on ESD constitutes social recognition of the concept rather than lip service. The report by Lavery and Smyth confirms to me that the commitments to the environment made by governments are largely rhetorical as many critical commentaries, particularly that of Huckle (1993), make clear. In November 2000 the Scottish environmental education council was dissolved.

In other discussions, Rauch (2002) advocates the ecologisation of schools following the Austrian model. Oulton and Scott (1995) explore the implications of UNESCO-UNEP model for pre-service teacher education, criticising the lack of feasibility of its lists of competencies, and advocating the European Union's *Environmental Education into Teacher Education* (EEITE) programme as more realistic. Building on an optimistic proposal by Law (1986), they too suggest a small step approach based on acknowledging that nothing is perfect and thus, the wait for perfection will be forever, that there is always something that can be done, and that when the most needed things have been accomplished, change will occur.

Jaritz (1996) suggests a reorganisation of teacher education but while posing a set of questions and list of skills required, Jaritz's work, like other reports cited here, provides few concrete suggestions. This kind of discussion is at its worst in a more recent work by Fler (2002). Despite boldly proposing a "futures perspective on environmental education" (p. 137), she draws no more substantive conclusions other than; "the consequences of curriculum fragmentation have yet to be fully realized", and, the "need for curriculum developers, researchers and teachers to co-construct curriculum which builds learners who see connections and have the conceptual tools to work towards a more positive future" (Fler, 2002, p. 151).

In contrast, Huckle (1998) is far more realistic in reviewing the World Wide Fund for Nature's programme; *Reaching Out*. He discusses the difficulties of introducing even the best designed programmes into practice, drawing on a number of sources in proposing that protecting the environment can only be achieved by facing up to the underlying social and political realities.

Huckle (1999) returns to this theme of underlying cause in challenging Sauv  s (1999) argument that environmental education is a modernist construction while education for sustainability is symptomatic of the battle between modern and postmodern thinking. He reacts to Sauv  s explanation of modernity and post-modernity as simply epistemological descriptions. Based on these, Sauv   (1999) proposes an education for responsible citizenship that she positions within transformative postmodern thinking, focusing on new ways of thinking, being, doing and acting (p. 12). She shows no consciousness of the descriptive nature of these two terms (modern and postmodern) or that their description of changing empirical and material social realities provides no analysis of cause, failing to acknowledge uneven power relations in the postmodernist faith in dialogue.

Huckle (1999) responds to Sauv  s work by highlighting its lack of explanation of cause in confronting the sustainability issue. In discussing a number of structural issues he charges that Sauv   fails to recognise postmodernism as a manifestation of the restructuring of capitalism in response to economic and environmental problems. He interprets education for sustainability, not only as a response to accumulated environmental problems, but also as a debate about the mode of regulation that will allow capitalism to survive in a viable form. This, he suggests, is essentially a reformist debate.

In Huckle's view, critical theory is a tool for understanding why the hopes of modernism have remained only partially realised. He proposes that discursive democracy provides a mechanism for the realization of common interests. It is his contention that this realisation can be achieved in ways that are ecologically, economically socially and culturally sustainable. He points to a critical tradition that accepts cultural mediation of reality and the plural understandings and limitations of meta-narratives, but that rejects total relativism. It is a position consistent with critical realism, a concept that Huckle (1993) has discussed but not pursued in detail here (Huckle, 1999).

Huckle's work again stands out as focusing on cause where others discuss only symptoms, hardly coincidental given his (1993) understanding of critical realism. The summary in this section abbreviates many fascinating dimensions to the arguments mentioned and has

neglected many others. Two brief references below give some sense of the breadth of meso level work in the field that cannot be given space here.

Johnson (2003) for example, in discussing the tragedy of the commons, argues that where environmental degradation occurs through the cumulative exploitation of a resource, the notion that people are individually obligated to use less is fruitless. There can be no expectation that this will succeed unless there is also a collective agreement by everybody to reduce usage to a sustainable level. The extrapolation of this argument is that individual change, and individual critical thought, are not enough.

Posch, (1997) addresses the changes in industrialisation and the focus on the individualism that is associated with postmodern society. He explains the ecological crisis in terms of game theory after Sigmund (1993). In this theory, cooperation is only beneficial if everyone cooperates. The most individually advantageous position to be in is to act in self-interest while everyone else cooperates. This fits well with the position taken by Johnson (2003) above. From this analysis, Posch proposes a number of challenges for schooling that suggest the need for the development of 'dynamic qualities' in learners, and the development of dynamic social networks that link schools with society and reduce fragmentation.

Fascinating as these arguments are, they characterise meso level discussions that do not address cause, but also do not develop initiatives on the ground, although this criticism is unfair when Posch's work over a longer period is reviewed. These two works (Posch, 1997; Johnson, 2003) support some broader scale theorising that usefully illuminates the concept of deep reality discussed in section 11.5.5.

11.5.4 Parallel developments

Several works uncovered in the literature run very closely parallel to the theorising in this thesis. Kollmuss and Agyeman (2002) address the question of why people act in pro-environmental ways relating to the 'gaps' debate. Drawing on theories and models from environmental psychology and sociology they stress that the issues about why people act environmentally, and the nature of the barriers to such action are extremely complex, that there are no definitive answers. They write to "open up a dialogue regarding the most effective ways environmental educators might help develop pro-environmental behavior *at all levels in society*" (Kollmuss & Agyeman, 2002, p. 240, my italics)

Their model acknowledges external as well as internal factors as influencing behavior, along with barriers that are social as well as psychological. External factors include both infrastructural factors and the social, cultural, economic and political situations. Thus, they have identified aspects of material and deep social reality impacting on individual behavior. They suggest in their model that these things interact on each other. That as well as external factors influencing internal ones, both work in concert to influence behavior if the barriers can be overcome. People also take indirect action, such as political action, in order to change the external factors that affect them.

The Kollmuss and Agyeman model has many close similarities and points of compatibility with the triple loop reflection model proposed in Chapter Ten, and with the reflexive nature of the levels of social reality. While not specifically identifying three levels, their work consciously canvasses them. It also provides a useful conceptualisation of the barriers to pro-environmental action that are reminiscent of “institutional inertia”.

An approach that provides practical responses at the level of schools is the concept of action competence that has been mentioned by Oulton and Scott (2000) and Bolstad et al (2004a, 2004b) as worthy of attention. Jensen and Schnack (1997) position the action competence approach within the liberal project but see it as a response to individualism and science based teaching. They exhibit faith in school education, and focus on pedagogy. They make two key points that are relevant here: That schools cannot solve political problems through the actions of students, and that concerns about the environment need to be coupled with concerns about democracy in which members of society are participants.

Jensen and Schnack (1997) stress that actions are seen as part of the education process. They acknowledge three levels of action at a pedagogical rather than at an ontological level. They consider schooling should consider political and structural issues within pedagogy but also insist that direct involvement in politics is outside the domain of schooling.

The three levels, the micro, the meso and the macro, are identified explicitly by Pieters (2003) in relation to curriculum development. Pieters recognizes that activity at the classroom pedagogical level has to be supported by school organization and planning and that must be facilitated in turn by curricula and assessment regimes. However, these are not recognised as ontological levels, and the notion of triple loop theorising has not emerged in the generalised form proposed in this thesis.

Of further interest is a contribution by Stephen Gough, Walker and Scott (2001) in which some follow up to the critiques by Walker, and Scott and Oulton discussed earlier is provided. In post-modern vein they argue that progress in the field is only possible if all absolute criteria for judging it are considered problematic. They assert that education is not a vehicle for saving the planet. In searching for a theory of lifelong learning these authors propose three types of knowledge: Fast-track knowledge that is context specific, day-to-day knowledge; Medium-track knowledge that accepts social parameters as given, is typically technocratic, and relates to the maintenance of dedicated social institutions; and Slow-track knowledge that responds to new problem definitions. Broad scale social, economic and environmental assumptions are cast into doubt by Slow-track knowledge and this may threaten and be resisted by existing social institutions. It is because of the complex interaction of these kinds of knowledge that are deeply context specific that no overarching criteria can be applied, it is argued. What is intriguing here is that both the proposal of three types of knowledge and the way that the ideas are applied in practical situations by Gough, Walker and Scott (2001) is remarkably similar to the proposals in this thesis, however, having adopted a relativist epistemology, they are not able to conceptualise the ideas in the way that the critical realist ontology has allowed here.

Hart, Jickling and Kool (1999), in parallel with Gough, Walker and Scott (2001), attempt to address issues of quality in environmental education without specifying criteria by which such endeavours might be judged. They propose evaluative criteria in the form of a reflective questions framework that could be applied in a range of situations. They see these as stepping-stones rather than a single path. They reject a narrow prescription of the field, but exhibit faith in education to remedy environmental problems, despite the record of failure they discuss. They see good environmental education as good education. In developing their reflective framework, Hart, Jickling and Kool (1999) specifically visit Eisner's (1979) notions of the explicit, implicit and null curricula, and based on these, develop an array of questions about the quality of teaching materials. In doing so they propose one of the levels of the issues matrix developed in this thesis. While most of their questions address pedagogical issues at the micro level, it is noticeable that the questions call for clarification of philosophical positions and make mention of environmental citizenship. These too are issues that are addressed, although in a different way, by the issues matrix proposed in this thesis. Thus, this work can be seen to be grappling with some of the same issues as the matrix. Their questions provide for detailed local analysis

while the issues matrix seeks to identify general sets of tensions that need to be resolved at a range of levels before effective local practice can be properly conceptualised.

It can be seen in these three examples that notions of addressing environmental education at the three levels proposed are not unknown in the field although they have not been conceptualised in the way that has been done here. Also, some grappling with the issues identified in the matrix proposed in Chapter Ten is evident but is not conceptualised in the way, or with the breadth that has been done in this thesis. These examples are seen as exploring the same directions that have been taken here.

11.5.5 Expanding deep reality

The work of two authors in particular, illuminate the consideration of deep reality begun in this project. Bowers (2001, 2002) has articulated an argument that directly confronts the current social and educational orthodoxy, including critical theory, from a direction not yet considered in this thesis. Bowers' argument proposes that the way we perceive the world is shaped by linguistic structures, schema and metaphors that may be hundreds or even thousands of years old and that language thus "hides in itself a developed way of conceiving" (Heidegger, 1962, in Bowers, 2002, p. 22). The argument continues that many of the 'root metaphors' that shape our current consciousness arose in the transition from the medieval world to the modern and provided the legitimacy and moral base for the industrial revolution. These include the metaphor of the world and most things in it as machines, the metaphor of linear development which sees all change as improvement, that humanity has prime place in the universe, and that the individual is the basic social unit.

In developing this argument, Bowers (2002) undertakes a compelling critique of critical theorists, focusing on the work of Freire and Giroux. His point is that this work is founded on the same root metaphors as global capitalism. It cannot therefore provide answers to the global ecological crisis because it is trapped within an anthropocentric root metaphor that is individually centered and holds all change as positive. Bowers (2001) also suggests that these metaphors shape the curriculum and he is critical of the notion of learners constructing their own conceptions of the world because the assumptions behind this approach fail to account for the "meta-schemata that are encoded in the language processes that are the basis of thought, communication and behavior" (pp. 147- 148).

Bowers (2002) suggests a metaphor developed from a broadened conception of ecology that encompasses other generations in its scope and centers on relationships and interdependence. He is critical of the propaganda privileging scientific views of the world (Bowers, 2001) and acknowledges the existence of elite groups that have little knowledge or concern for the impacts of their technologies and accompanying social changes that accompany them. These powerful interests are served by the hegemony of the myths he opposes.

In parallel with Bower's work, Postma (2002) mounts a challenge to the nature of Liberalism. His work challenges liberal democracy in its focus on the primacy of the individual. Postma's (2002) argument charges that many of our 'shared values' are of questionable legitimacy. He argues that much of what is considered to be free choice, particularly related to consumption, actually involves deep moral issues. He affirms the position made throughout this thesis that the response by politicians to the need for changed behavior has been a faith in education. Much of this 'education' however is 'normative interference' (Postma, 2002, p. 42). This is in tension with the notions of rational and moral autonomy and debate, and the notion of schools as neutral that is central to the liberal tradition.

In an insightful discussion he points out that while liberal education cannot impose "first order" values, that is, tell people what to think, it does project a set of "second order values" such as tolerance, non-violence, personal freedom and respect that are the foundational values of liberal democracy. Postma suggests that environmentalism in all forms proposes a view of what is good. Its legitimacy then, depends on whether this is seen as a first or second-order good, and in particular, whether or not this view is subsumed as an essential part of liberal morality.

Postma notes that intergenerational justice is an extremely difficult ethical issue that "subjects any ethical theory to severe if not impossible tests" (Rawls, 1999, in Postma, 2002, p. 45). Attempts to consider future generations pose extreme problems for liberalism because the liberal position relies on reciprocity between actors in a metaphorical market, and this is not possible in considering future generations.

The weakness in liberalism, Postma suggests, is its minimalisation of public life in its morality and politics, in order that individuals might find fulfillment in the private sphere. This, together with the distinction between second and first order values that is associated with it, casts issues of intra-species and inter-generational justice into the private sphere as

individual moral dilemmas. Liberal theory thus neglects the structural nature of environmental crises because they are seen as personal issues and consequently the “political dimensions of the environmental crisis are pushed into the background” (Postma, 2002, p. 52) because you cannot tell others how to behave. This discussion provides a useful and enriching background to the discussion in section 11.3 relating to the debate about education *for* the environment.

In this light, political action at second and third loop level would be acting to transform the ‘structures’ in society and thus legitimate environmental concern as a core value within liberal education. These arguments extend the notion of deep reality to include language, linguistic structures, values, and political systems, and beyond politics and the economy. They also provide a useful background for reflection on the work of Posch (1997) and Johnson (2003) cited above.

11.6 PROMISING PRACTICE

A number of the ideas that have been put forward in this thesis, and discussed above, can be glimpsed beneath the surface of current ‘best’ practice. In drawing this chapter toward its conclusion I wish to report a number of contributions to the conference *Effective Sustainability Education: What works? Why? Where next? Linking research and practice*. This was held between February 18th and 20th 2004 in Sydney and organised by the New South Wales Council on Environmental Education.

In his keynote address, Greg Bourne saw three barriers to change that he identified as “structural, political and behavioral” (Bourne, 2004, p. 4). In another keynote address, not reported in the conference proceedings, Daniella Tilbury touched momentarily on the need for “practical, policy and paradigm” change. These triads could be seen as residing in empirical, material and deep social reality but were not developed by either speaker.

Three initiatives that went beyond the micro level were reported at this conference that to me, stood out as exemplary practice. These were the Roads and Traffic Authority (NSW) Local Government Road Safety Programme and the Sustainable Schools Project, both conducted in New South Wales, and a science education initiative conducted in Victoria. All three were undertaken with state government support, full commitment by the educational institutions involved, and involved work with teachers to develop improved

practice. Each functioned in a way that was legitimated at the deeper levels of social reality in improving practice at the micro level. (Only one of these initiatives is reported in the conference proceedings.)

Road safety is, as reported by Stephen Waite, past coordinator of the initiative, a political issue. While concerned about road safety though, the public is only conscious of one piece of data, the number of road deaths. Thus, although the road toll in comparison to the number of vehicles on the road and the distances driven has continued to drop very steeply, this is of little impact on the political imperative to reduce the absolute number of fatalities. As a result, the project enjoyed a 6.5 million dollar annual budget (Stephen Waite, personal communication, February, 2004). Waite reported that in pursuing their initiative his team insisted on institutional commitment at the highest level and admitted that the project was resourced at a level that allowed them to buy their way into schools. Assured of that commitment, the project involved working with teachers to develop Social Studies topics that developed sound pedagogical approaches and practice using road safety as the context.

Annette Gough (2004) reported on the Science in Schools Research Project that has now been adopted as 'School Innovation in Science' in the state of Victoria. This is a State funded initiative to improve the quality of science teaching occurring in schools that Gough reports as being of a lamentably low level. The project involved schools developing a three-year action plan to address this. The project funding allowed researchers to work with schools, providing the professional development needed to realise the action plan. This involved a five-step action research spiral that began with the local community. This project also sought to develop a model of effective teaching and learning, and environmental education provided an appropriate context for this, "thus achieving two (political) agendas with minimum effort" (Gough, 2004, p. 7). Gough (2004) responds to Walker's (1995) criticism that the core functions of schools are to develop numeracy and literacy and that while these are under-developed, environmental education will remain peripheral. Gough reports that the initiative raised science education to the same plane as literacy and numeracy as a curriculum priority so that it was seriously addressed. While noting the privileged resourcing status afforded the project, Gough (2004, p. 8) notes, "a space had been legitimated within the science Action Plan" to develop environmental education as a learning context for science within the schools.

These two projects suggest when initiatives are backed at all three levels, as Pieters (2003) suggested, and in these cases that involved substantial resources, the problems usually associated with environmental education are overcome. They confirm the importance, and systemic nature, of barriers to environmental education mentioned in several sources, that I have called 'institutional inertia'.

The third project, the Sustainable Schools Project (SSP) was reported by the staff of the New South Wales Department of Conservation, lead by Phil Smith, and arises from the policy of the New South Wales Department of Education and Training. The policy identifies three focus areas of curriculum, management of resources and management of school grounds. The policy requires government schools "to achieve the objectives of environmental education" and "address all three focus areas in ways meaningful to their school communities" (Department of Education and Training, 2001, p. 12). In response to this policy, the SSP staff assisted schools to develop a management plan outlining their strategies for meeting the requirements of the policy.

A most interesting aspect of this project is that in April 2004 the Department of Conservation began a rationalisation of state organisations involved in the environmental area. The result for the SSP has been a reduction of the resource allocation for this project for the next financial year along with the demoralisation and subsequent loss of significant personnel.

Whatever machinations have taken place behind the scenes, the result has been the downgrading of a potentially significant environmental education initiative. What is important about the policy is that it constitutes an attempt to match the rhetoric of environmental education within the curriculum (the explicit curriculum) and school practices (the implicit curriculum), and thus to espouse and model sound practice. The conclusion I draw is that an insufficient level of political backing has been available to legitimate the project in the way that was visible in the previous two initiatives reported here. This confirms the emerging conclusion from this research that unless environmental education activity is pursued at all three levels it is unlikely to progress. Indeed, the suggestion here is the lack of progress in the field in general is as a result of this lack of engagement at these levels, and at the political level in particular. On the other hand, the work reported here optimistically suggests that if this is done, the prospects for real progress are good, provided, I would suggest, that the initiatives are robustly theorised and address the same three levels within their pedagogical approaches. These are the points made by Pieters (2003) and Jensen and Schnack (1997).

11.7 REVIEWING NEW IDEAS

Two substantive sets of observations can be made in reviewing this chapter. The first involves the insights that arise in relation to the proposals put forward in this thesis while the second relates to the nature of the social realities in which environmental education has been purported to sit.

One of the key ideas proposed by this thesis involves triple-loop reflection at three levels of reality in order to engage fully with educational problems. This approach has not emerged clearly from the literature. Where descriptions do go close to examination at all levels, it is often confused, in that issues that reside at different levels of the critical realist ontology are juxtaposed. (The debate about education *for* the environment is an example.) Despite the incomplete nature of the descriptions, many of the ideas that have been brought together in this thesis can be seen 'percolating' in the literature in various fragmentary forms. Pieters (2003) explicitly identifies three levels of activity that have been discussed in relation to the positive initiatives described in section 11.6. Descriptive triads have appeared in a number of places and the work by Gough, Walker and Scott (2001) is descriptively close to the suggestions made here. It is distantly removed ontologically however. By implication, many of these ideas parallel the work of this thesis. What is new is the linking of these ideas with the critical realist identification of three levels of reality that are causally linked. There is sufficient evidence to suggest (the Scottish and New South Wales examples stand out), that if support at all these levels is not available, initiatives face severe difficulty. I would extrapolate from those examples and the experience in New Zealand to suggest that it is the lack of genuine support at the political level that accounts for much of the failure of the field to make progress.

Many of the studies that have been described as micro or meso level confirm the view put forward earlier that there is an absence of curriculum or sociological theory integrated into environmental education thinking. Much of the work reviewed is mired in relativism but this can be escaped using a critical realist approach as Huckle (1993, 1999) realizes. In trying to bridge the gap between proposing some kind of quality guidelines for the field and allowing local autonomy, Hart, Jickling and Kool (1999) come closest to identifying the philosophical and curriculum complexities that permeate school education. They apply theory to practice by interpreting aspects of Eisner's (1979) curriculum theory

through a set of reflective questions for teachers. Their approach could complement the use of the issues matrix proposed. While they demonstrate parallel theorising, they have not taken it as far as has been done here. The strategy for supporting critical reflection without telling people what to think is the same however. I would propose that the issues matrix contains a more comprehensive engagement with educational complexity and a superior way of simultaneously resolving multiple compromises than anything that has been seen in this review.

Thus, I contend that while many aspects of the proposals here can be seen in the literature in fragmentary and disconnected forms, the theorising conducted here and the proposals that arise from it provide some new insights. They have the potential to untangle some of the debates and to integrate much of the fragmentary description that occurs in the literature into a more coherent body. This assertion is made tentatively however and awaits critical evaluation by my peers.

In reflecting on the nature of reality in the light of the literature above, a number of important insights emerge. Bhaskar and Bowers have argued that language plays a pivotal role in the way we think and interpret the world. Postma's discussion of liberalism adds to this discussion by showing the extreme subtlety with which liberal assumptions about democracy are woven into that complexity. This discussion suggests that language structures and values are a significant part of deep reality. In this sense, their impact on deep reality arises from the collectivity of individuals. Individual humans are shaped by and are themselves part of this deep social reality. There is hope here then, that if sufficient effort is made in the 'right way', that deep social reality can be changed. This does happen in times of social stress such as war. What the liberal notion of individual change lacks, however, is an acknowledgement of the powerful interest groups that manipulate social reality towards their own ends through the media and by access to political power. This is not commonly addressed in the literature but does arise. In providing one of several responses to a charge of bias in environmental education by Sanera (1998), Bowers (1998) mounts a biting challenge in pointing out Sanera's close associations with the corporate world. Bowers suggests that classical liberalism is supported by capitalism because it is able to influence the supposedly rational choices of individuals through control of global message systems. Suzuki and Dressell (1999) mount a similar argument.

It has been argued by Bowers and Postma that liberalism, in focusing on the individual, provides an inadequate vehicle for fundamental change in human behavior. The response

to this argument within this thesis is to argue that third-loop reflection focusing on the social, economic and political forces that shape society, and democratic political action to change these, is an essential but neglected aspect of environmental education. This conclusion has been suggested as a logical response to a critical realist analysis and is implied by Bhaskar's work.

The conceptualisation by Kollmuss and Agyeman's (2002) of a model that incorporates wider social values and infrastructural issues, along with an identification of barriers to positive behaviour, implicitly engages with the three levels proposed here. This work indirectly supports the theorising here and the discussion above that informs it. The insistence on engagement with political issues adds a dimension to the environmental education debate that is generally absent from the literature. Thus, in summary, the theorising in this thesis provides several avenues for progress that have not emerged with clarity in the literature reviewed here.

11.8 FAITH UNFOUNDED?

It has been suggested that a large part of the environmental education literature exhibits faith in education as a response to the environmental crisis. A small but significant set of commentaries has been considered that acknowledges that the thirty year history of environmental education has achieved little. Some of those commentaries (Walker, 1997; Sauv , 1999; Oulton & Scott, 2000) retain faith in existing structures, reorganised, to address the problems, although the nature of that reorganisation is often not proposed. Alternatively, Sauv  (1999) suggests a reconstruction of environmental education. In contrast, Huckle, (1991, 1993, 1999) challenges both arguments for their failure to address the causes of environmental problems that are argued to lie within capitalism as a driving force in society.

Most environmental education can be seen as liberal, and therefore accommodationist, because it maintains a basic faith in existing social structures. Critiques of both liberalism and of critical theory have been invoked in this chapter (Bowers, 2001, 2002; Postma, 2003). In response to these discussions, it has been the growing conclusion throughout this work that the faith in environmental education that is evinced in the literature, and that is evident in the foundational documents of the field, cannot be justified by evidence.

Although they do not always make it explicit, a number of the works selected for attention in this chapter do engage in an analysis that goes beyond the daily practice of schools and the way they are organised, to consider elements that contribute to shaping both of those. These range from the exploitative nature of the economic system, and the way our social values shape our propensity to act, to the underlying schema that shape our cognition. This literature supports the contention that there are underlying aspects to our social organisation that shape our thinking, our social and political organisation, and through this, the way we conduct our lives. These underlying forces are recognisable as the deep social reality theorised in this research. Bower's work, suggesting the root metaphors that shape our consciousness are part of the cause of our behaviour towards the environment, also suggests that these metaphors need to be changed before we can correct the problems. This is supportive of the view that social issues need to be addressed at the level of cause within deep reality. While there has been no attempt to detail the nature of deep reality in any definitive way here, issues of economics, the structure of language and our liberal democracy have emerged.

A small number of writers, particularly Huckle, Jensen and Schnack, and Peiters do address all three levels of reality put forward here although it is either not done with particular clarity (Huckle, 1999), or is applied narrowly (Jensen & Schnack, 1997; Pieters, 2003). In general, even when these levels are implicitly addressed there is a lack of a comprehensive approach of the sort suggested in this thesis. In particular, there is a lack of attention to the restructuring of social organisations, such as schools and curriculum, in ways that support the critical pedagogical approaches advocated by both socialist and liberal educators.

While the three levels of critical reflection proposed here are suggested to provide a general theoretical approach for unpacking issues, they are insufficient to resolve many educational, let alone social, debates. The discussion of educational issues is facilitated by the use of the issues matrix. What has been suggested throughout Chapters Ten and Eleven is that the matrix not only provides a way of untangling specific educational issues, but in doing so, also suggests theories of change for responding to them. This proposal receives attention in the concluding chapter.

CHAPTER TWELVE: Conclusions

12.1 INTRODUCTION

There are a number of tasks that remain to be completed in this chapter. The first is to briefly review the proposals developed within the thesis and to position them in the light of the review conducted in Chapter Eleven. This is undertaken in section 12.2. The next task, conducted in section 12.3, is to briefly outline the implications of applying the analysis suggested in the New Zealand context. The limitations of the study are discussed in section 12.4. In section 12.5 the implications for future action that arise from the theorising done here are considered, and some final concluding comments complete the work in section 12.6.

12.2 THE THESIS IN CONTEXT

Two main proposals are put forward in this thesis. The first is the Critical Problem-Based Methodology that expands on its 'parent' by requiring three loops of learning and action. This extends the discussion of educational problems and issues to include the macro-level analysis that was rejected in Problem-Based Methodology. A number of sources have been explored (Postma, 2002; Bowers, 2002, 2001; Kollmuss & Agyeman, 2002) that lie outside the traditional ground occupied by critical theorists but that suggest environmental education thinking and practice must engage at this macro level. These arguments, along with the views of traditional critical theorists such as Fien and Huckle, have been presented to support the proposition of this third loop of reflection.

The second proposal is the use of the issues matrix developed here as a framework for critical reflection. This has several strengths that have not appeared in the literature reviewed. The matrix incorporates engagement with sociological issues and curriculum theory into reflection about environmental education. Further, it separates a number of educational tensions into their component parts. This allows those issues to be discussed separately but reviewed collectively, in order to assist the development of a coherent and considered approach to the educational endeavour as a whole.

This approach is theoretically robust in that its methodology is informed by a critical realist ontology that proposes a reality comprised of three levels. These match the loops of

reflection and learning found in Critical Problem-Based Methodology. This development is also new to the field of environmental education. While several sources have been identified that touch on parts of the proposals developed here (Pieters, 2003; Gough, Walker and Scott, 2001; Hart, Jickling & Kool, 1999), none of them has approached the integration of ontology and methodology, or the substantive educational issues that are incorporated in the issues matrix in the way that has been done here. The matrix also has the capacity to be expanded and applied to new situations involving unanticipated issues.

The research and theorising have also been undertaken in a way that is not common in environmental education. In this regard, Paul Hart, in conversation with Hungerford and Simmons, makes two significant comments on research in environmental education. Firstly, he suggests:

Researchers have an obligation to articulate their philosophical/cultural/situational positions/backgrounds more explicitly in order to avoid the inevitable critique concerning naïve explanations of deeper meanings and commitments. Research practices cannot be understood except within the systems of thought that make them intelligible.

(Hungerford & Simmons, 2003, p. 6)

Every attempt has been made, throughout the research process, to clarify the theoretical and values positions adopted by the researcher, and to describe the nested contexts in which it occurred. It is hoped that these strategies, linked with the ontological and methodological analysis undertaken, will stand the research well with regard to this obligation.

The research has not been quite so successful in relation to the second point raised by Hart. In this, he requires that researchers:

Explore (with teachers) how research might actually penetrate teachers' ideology or consciousness in order to even begin to understand resistance to change or to understand practice.

(Hungerford & Simmons, 2003, p. 5)

While the work here has explored (with teachers) the contexts and constraints under which they work, the subsequent theorising has been undertaken largely in isolation. While it has been done for teachers, in the sense that the products are intended as a

framework to assist critical reflection on practice, including my own, the work 'with teachers' remains a future challenge.

The proposals developed here also contain a number of further compelling features. The CPBM approach, in tandem with educational analysis using the issues matrix, have been argued to be able to resist the criticisms mounted against critical theory by Walker and Oulton and Scott, and to assist in resolving the debate regarding education *for* the environment. The important issue of legitimacy has also arisen in discussing these issues. Third loop analysis has the further capacity to incorporate thinking on deeper issues of language, and social values and assumptions discussed by Postma and Bowers, into educational thinking. Separating issues into three ontological levels has the capacity to resolve some theoretical tensions within education in general. It allows educational psychological and sociological approaches to be applied to the same problem, at first and third loop levels, and is able to draw on the literature relating to school development and change at second loop level. Similarly, a range of research approaches can be drawn on in seeking to describe different levels of reality. Finally, the approach developed here facilitates the application of a transparent and negotiated normative framework to guide reflection, and in doing so expose this to ongoing reflection and debate.

Overall, the proposals here provide practitioners with the opportunity to both deepen and broaden their engagement with educational issues. To assist this, the thesis proposes a framework for reflection that guides thinking, but does not prescribe its specifics. Thus, it bridges the tension between providing guidance for the field, without being prescriptive. It therefore allows issues to be resolved in ways that are local and contextual.

12.3 APPLICATION TO THE NEW ZEALAND SITUATION

In applying the findings of this research to the New Zealand context a number of suggestions for action are apparent. Most of these emerge from the data without recourse to the wider theorising conducted here, and are apparent too in both the New Zealand (Bolstad et al., 2004a) and international literature (Hart and Nolan, 1999). These include supporting teachers with the provision of resource materials, advice, and time allowances. These things have been provided in the past and not proved particularly effective, an observation that this research confirms. Initiatives that lower the *institutional inertia* in

schools are also required. A specific strategy to begin to address this is the provision of a mandate for environmental education within the curriculum. Examples of initiatives in Australia, reported in Chapter Eleven, indicate that substantial resource support is also required. These initiatives suggest that the prerequisite for this is strong political support. The engagement of triple loop reflection, developed in this thesis, supports the conclusion that all these things are required, and that failing to act at all these levels will reduce the likelihood of success. That all levels need to be in focus in a collective endeavour is one of the points to emerge from this theorising.

There are further requirements for addressing the environmental education impasse that the steps above fail to recognise however. Educators at all levels need to reconsider their practice as Hart confirms (Hungerford & Simmons, 2003). This involves clarifying their philosophical positions, reconsidering the structure of the curriculum, the nature of the implicit messages transmitted by schools, the purposes of schooling, the nature of employment and citizenship, and finally, what we value. In short, the issues addressed in the matrix developed here. This needs to be done at the level of practice, and also at the systemic level. This obvious outcome of the theorising here is confirmed in the review of the literature conducted by Hart and Nolan (1999). Without that rethinking, education will continue to be informed by the assumptions and values that reside in the paradigm that is responsible for the environmental crisis, and be essentially accommodating. While several liberal educators call for a small steps approach, if those small steps are continued through ongoing critical reflection at the three levels proposed here, a more transformative result may be possible. I see little other realistic alternative. I hope, however, that the work of this thesis might assist in enlarging some of the steps. The crucial factor that has been suggested as missing from the field throughout this research is engagement at the political level. This, it is suggested, in large part accounts for the lack of progress.

12.4 PROJECT LIMITATIONS

There are a number of limitations to the work of this thesis that need to be kept in focus in bringing it to a conclusion. In particular, the project has not attempted to follow the full set of steps involved in PBM and CPBM by proposing and testing problem solutions. The

research here has sought primarily to develop a more complete description of the environmental education impasse problem, and in response, to theorise some ways that could assist with making progress in confronting it. It was initially hoped that the research might provide feedback that would assist in helping beginning teachers to teach environmental education in schools. However, the issues that arose in the research suggested that the problems faced were largely systemic and not easily solved by individual teachers. They are largely contextual, none-the-less. Thus, the project here does not attempt to complete the problem solving process, even if that were possible within CPBM, since problem solutions should not be closed.

It should also be remembered that the numbers of teachers involved in each of the phases was small, and that the recruitment was opportunistic. While I have proposed that other evidence in the field supports my findings, this limitation must be kept in mind. As well, the nature of the work done in a project of this nature is individualistic. While some of the ideas put forward here have been presented publicly, and some positive feedback received, that does not constitute rigorous and considered analysis. The work therefore must be seen as narrowly based.

The complex nature of the impasse described means that it does not consist of a single problem, but a tangle of interlinked educational and social issues. As a result, it would be impossible to suggest a single approach or set of approaches in response. This leads to a further limitation of the work. The fact that the strategies suggested here might prove useful in some situations does not necessarily support the theorising as a whole. In fact, the work here could only be advocated with confidence if it was found to be useful in a range of diverse situations, and helped develop approaches that did begin to make a difference. As a result of these limitations, the work can only be put forward tentatively for consideration by others in their own particular situations.

Finally it needs to be kept in mind that even if the theorising here did provide an accurate description of social reality, that reality is complex and not amenable to deterministic prescriptions. Deep social reality is necessarily both complex and obscure. That reality is shaped by the cumulative actions and values of people. These are difficult to understand and even harder to change. Perhaps planned change through deliberate action is impossible, even if it was ethical, because it is not possible to predict how social groups will respond to stimulus. In this light it would be unrealistic to expect miraculous results from the application of these ideas. Further, because of the complex nature of the impasse

being described here, action for change needs to be broadly based, collective and concerted, and we do not have a great record in maintaining this type of activity.

These limitations may not be as daunting as they appear however. The fact that reality is revealed in its complexity here, and that it cannot be changed by single responses or by individual action, may serve a valuable purpose. In this light a range of responses is vital, failure to work with others is of limited value, and a narrow approach simply naïve. Thus the limitations of this theorising may highlight the limitations in the ways we currently conceptualise the environmental education endeavour.

12.5 FUTURE IMPLICATIONS

The theorising that is integral to this research began to crystallise in late 2002 as described in Chapter Four. At every step of the way my thinking has been reflected in my daily actions and practice. Thus, many of the implications that arise here have already been explored.

I have incorporated the issues matrix developed here into the original undergraduate course and had this externally reviewed. While the review was positive, the reviewer concurred with my assessment that the course was demanding at the undergraduate level. In response, I have developed a parallel course at post-graduate level. As well as critically reviewing the foundational goals of the field and exploring the issues set out in the issues matrix. This new course requires participants to critically reflect on the application of the matrix at three levels in relation to their own practice and their capacity to act as transformative intellectuals. This is part of the process of subjecting these ideas to a critical examination to evaluate their usefulness in assisting teachers' reflection about their practice.

I have also begun to use triple-loop reflection as a pedagogical strategy in two ways. One is to explain the approach to students as a way of classifying the complex ideas that they are exposed to in pre-service teacher education. Thus, when we discuss planning we are engaged at first loop level. When we consider school accountability and assessment regimes, it is at second loop level. Discussion of the political nature of curriculum is at third loop level. This is very similar to the approach advocated by Pieters (2003),

interpreted at a pedagogical level. Although I have only done this informally, the reaction has seemed positive. The second approach is to address symptoms, structures and causes in studying and analysing any issue in class, the points raised by Jensen and Schnack (1997). It is the ability to consider these issues separately before attempting to understand their inter-relatedness that seems to be valuable.

Most importantly though, and following from the previous point, I use this analysis all the time. In particular I find it helpful in identifying the area of responsibility for problems. I have been practicing small-scale interventions at the second loop level of my own institution's structures in particular. These would be recognisable by the Head of College or the College representative to the University Council if they read this thesis. This analysis has also encouraged me to write to the newspaper and to members of parliament on topical issues. On completion of this project the idea of further political action will receive my attention. I also find my confidence has increased when raising educational and curriculum issues with Ministry of Education Officers and in the wider community. I have a better analysis of the scope of debates and seem able to maintain a clearer focus. However, that may result from the process I have been through rather than its products. Whatever the reasons, I feel more confident as a result of the work done here. How others react remains part of a future project.

There is a further raft of challenges implicit in this work. Developing curriculum materials for schools, involvement in curriculum development at school and College levels as well as contributing to national curriculum debate. In this light, I have raised curriculum issues in presentations at two recent conferences. The need for a political mandate has been addressed by proposing it as policy for the New Zealand Association for Environmental Education at its 2004 AGM. This is a starting point for collective lobbying. There is also a need to disseminate these ideas to the international environmental education community, a task that has commenced. These are examples of actions that have arisen in response to the theorising described here.

One issue that has become a focus through the research process is collective action. The discouraging results of the work with teachers in the early parts of the process have made me cautious in choosing working partners however. I am now particularly conscious of weighing the degree to which my values and motives are congruent with potential partners, the level of commitment they have, and the level of institutional inertia involved. These are not concerns within my own institution, or in wider political arena, where I can operate with confidence. They are at issue in working in schools where some staff are

keen, but institutional commitment is limited or withheld. The motive for this caution is the awareness of the time and energy that can be wasted in unsupportive situations.

I have reported these implications in terms of my own practice in recognition of the limited value of trying to prescribe general suggestions for unknown situations. The suggestions made here could be adapted for other contexts. The proposed curriculum mandate is a general suggestion, but the point has been made that unless that is accompanied by other initiatives that stimulate some deeper level of educational rethinking, the mandate alone will have little affect. It has also been emphasised several times that it is only action at all three levels, accompanied by ongoing collective critical reflection about the nature and effectiveness of that action, that appears to provide any hope of dismantling the impasse described in this thesis.

12.6 IN CONCLUSION

It needs to be remembered that this thesis began as an attempt to gauge the usefulness of an environmental education course to those who had participated in it, in their role as teachers. The results were discouraging. In expanding the scope of the search for insights into the barriers to environmental education, the problem was seen to be widespread, and was described as an impasse. In terms of the Problem-Based Methodology used in attempting to address this impasse, the work here has involved describing the impasse situation and proposing tentative responses to it. The development of and expanded Critical Problem-Based Methodology has assisted a wider and more complete description of the problem situation and a more comprehensive set of suggestions for action. Despite this, they are not definitive. Apart from the multi-level complexity of the issues, people need to respond in their own contexts and no set of proposals can prescribe such detail. Thus, while the suggestions here are put forward with some confidence that they constitute a significant step forward in environmental education, they are at the same time considered tentative. It is the use that others find in these suggestions that will determine their value.

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APPENDIX ONE

Principles from the Rio Declaration

Having met at Rio de Janeiro from 3 to 14 June 1992,

Reaffirming the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972, and seeking to build upon it,

With the goal of establishing a new and equitable global partnership through the creation of new levels of cooperation among States, key sectors of societies and people,

Working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system,

Recognizing the integral and interdependent nature of the Earth, our home,

Proclaims that:

PRINCIPLE 1

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

PRINCIPLE 2

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

PRINCIPLE 3

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

PRINCIPLE 4

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

PRINCIPLE 5

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

PRINCIPLE 6

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

PRINCIPLE 7

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

PRINCIPLE 8

To achieve sustainable development and a higher quality of life for all people. States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

PRINCIPLE 9

States should cooperate to strengthen endogenous capacity building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

PRINCIPLE 10

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

PRINCIPLE 11

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

PRINCIPLE 12

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus

PRINCIPLE 13

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation by adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

PRINCIPLE 14

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

PRINCIPLE 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

PRINCIPLE 16

National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

PRINCIPLE 17

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

PRINCIPLE 18

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States. Every effort shall be made by the international community to help States so afflicted.

PRINCIPLE 19

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

PRINCIPLE 20

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.

PRINCIPLE 21

The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

PRINCIPLE 22

Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

PRINCIPLE 23

The environment and natural resources of people under oppression, domination and occupation shall be protected.

PRINCIPLE 24

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

PRINCIPLE 25

Peace, development and environmental protection are interdependent and indivisible.

PRINCIPLE 26

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

PRINCIPLE 27

States and people shall cooperate in good faith and in a spirit of partnership in the fulfilment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development.

APPENDIX TWO

** Topic: TREATY ENVIRONMENTAL EDUCATION **

** Written 10:52 am July 7, 1992 by ax:rmulher in peg:unced.dialogue **

TREATY ON ENVIRONMENTAL EDUCATION FOR SUSTAINABLE SOCIETIES AND GLOBAL RESPONSIBILITY

[This treaty, as in education, is a dynamic process and should therefore promote reflection, debate and amendments.]

We signatories, people from all parts of the globe, are devoted to protecting life on earth and recognize the central role of education in shaping values and social action. We commit ourselves to a process of educational transformation aiming at involving ourselves, our communities and nations in creating equitable and sustainable societies. In so doing we seek to bring new hope to our small, troubled, but still beautiful planet.

I. Introduction

We consider that environmental education for equitable sustainability is a continuous learning process based on respect for all life. Such education affirms values and actions which contribute to human and social transformation and ecological preservation. It fosters ecologically sound and equitable societies that live together in interdependence and diversity. This requires individual and collective responsibility at local, national and planetary level.

We consider that preparing ourselves for the required changes depends on advancing collective understanding of the systemic nature of the crises that threaten the world's future. The root causes of such problems as increasing poverty, environmental deterioration and communal violence can be found in the dominant socio-economic system. This system is based on over-production and over consumption for some and under-consumption and inadequate conditions to produce for the great majority.

We consider that inherent in the crisis are an erosion of basic values and the alienation and non-participation of almost all individuals in the building of their own future. It is of fundamental importance that the world's communities design and work out their own alternatives to existing policies. Such alternatives include the abolition of those programmes of development, adjustment and economic reform which maintain the existing growth model with its devastating effects on the environment and its diverse species, including the human one.

We consider that environmental education should urgently bring about change in the quality of life and a greater consciousness of personal conduct, as well as harmony among human beings and between them and other forms of life.

II. Some Principles of Environmental Education for Equitable and Sustainable Societies

1. Education is the right of all; we are all learners and educators.
2. Environmental education, whether formal, non-formal or informal, should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of society.
3. Environmental education is both individual and collective. It aims to develop local and global citizenship with respect for self-determination and the sovereignty of nations.
4. Environmental education is not neutral but is values based. It is an act for social transformation.
5. Environmental education must involve a holistic approach and thus an interdisciplinary focus in the relation between human beings, nature and the universe.
6. Environmental education must stimulate solidarity, equality, and respect for human rights involving democratic strategies and an open climate of cultural interchange.
7. Environmental education should treat critical global issues, their causes and interrelationships in a systemic approach and within their social and historical contexts. Fundamental issues in relation to development and the environment, such as population, health, peace, human rights, democracy, hunger, degradation of flora and fauna, should be perceived in this manner.
8. Environmental education must facilitate equal partnerships in the processes of decision-making at all levels and stages.
9. Environmental education must recover, recognize, respect, reflect and utilize indigenous history and local cultures, as well as promote cultural, linguistic and ecological diversity. This implies acknowledging the historical perspective of native peoples as a way to change ethnocentric approaches, as well as the encouragement of bilingual education.
10. Environmental education should empower all peoples and promote opportunities for grassroots democratic change and participation. This means that communities must regain control of their own destiny.
11. Environmental education values all different forms of knowledge. Knowledge is diverse, cumulative and socially produced and should not be patented or monopolized.
12. Environmental education must be designed to enable people to manage conflicts in just and humane ways.
13. Environmental education must stimulate dialogue and cooperation among individuals and institutions in order to create new lifestyles which are based on meeting everyone's basic needs, regardless of ethnic, gender, age, religious, class, physical or mental differences.

14. Environmental education requires a democratization of the mass media and its commitment to the interests of all sectors of society. Communication is an inalienable right and the mass media must be transformed into one of the main channels of education, not only by disseminating information on an egalitarian basis, but also through the exchange of means, values and experiences.

15. Environmental education must integrate knowledge, skills, values; attitudes and actions. It should convert every opportunity into an educational experience for sustainable societies.

16. Education must help develop an ethical awareness of all forms of life with which humans share this planet, respect all life cycles and impose limits on humans' exploitation of other forms of life.

III. Plan of Action

The organizations that sign this Treaty will implement policies to:

1. Turn the declarations of this Treaty and of other Treaties produced by the Conference of Citizens' Groups during the RIO 92 process into documents for use in formal education systems and in education programmes of social movements and social organizations.

2. Work on environmental education for sustainable societies together with groups that draft other Treaties approved during RIO 92.

3. Make comparative studies of the treaties of citizens' groups and those produced by the United Nations Conference on Environment and Development (UNCED) and use the conclusions in educational activities.

4. Work on the principles of this Treaty from the perspective of local situations, necessarily relating them to the state of the planet, creating a consciousness for transformation.

5. Promote knowledge, policies, methods, and practices in all areas of formal, informal and non-formal environmental education and for all age groups.

6. Promote and support training for environmental conservation, preservation and management, as part of the exercise of local and planetary citizenship.

7. Encourage individuals and groups to take positions, and institutions to make policies, that constantly review the coherence between what is said and what is done, as well as the values of our cultures, traditions and history.

8. Circulate information about people's wisdom and memory, and support and inform about appropriate initiatives and technologies in relation to the use of natural resources.

9. Promote gender co-responsibility in relation to production, reproduction and the maintenance of life.

10. Stimulate and support the creation and strengthening of ecologically responsible producers' and consumers' associations, and commercial networks, that provide ecologically sound alternatives.
11. Sensitize populations so that they establish Peoples' Councils for Environmental Management and Ecological Action to research, discuss, inform and decide on environmental problems and policies.
12. Create educational, judicial, organizational and political conditions to guarantee that governments allocate a significant part of their budgets to education and the environment.
13. Promote partnership and cooperation among NGOs, social movements; and the UN agencies (UNESCO, UNEP, FAO, and others) at national, regional and international levels to jointly set priorities for action in education, environment and development.
14. Promote the creation and strengthening of national, regional and international networks for joint action between organizations of the South, North, East and West with a planetary perspective (e.g. foreign debt, human rights, peace, global warming, population, contaminated products).
15. Ensure that the media becomes an educational instrument for the preservation and conservation of natural resources presenting a plurality of views and reliable and contextualized information and stimulate the broadcasting of programmes generated by local communities.
16. Promote an understanding of the causes of consumerist behavior and act to change practices and the systems that maintain them.
17. Search for self-managed, economically and ecologically appropriate alternatives of production which contribute to an improvement in the quality of life.
18. Act to eradicate sexist, racist and any other prejudices, as well as contribute to the promotion of cultural diversity, territorial rights and self-determination.
19. Mobilize formal and non-formal institutions of higher education in support of teaching, research and extension towards the community in environmental education, and the creation in each University of interdisciplinary centres for the environment.
20. Strengthen social organizations and movements in order to enhance the exercise of citizenship and an improvement in the quality of life and the environment.
21. Assure that ecological organizations popularize their activities and that communities incorporate ecological issues in everyday life. :
22. Establish criteria for the approval of education projects for sustainable societies, discussing social priorities with funding agencies.

IV. Coordination, Monitoring and Evaluation Systems

All signatories of this Treaty agree to:

1. Distribute and promote the Treaty on Environmental Education for Sustainable Societies and Global Responsibility in all countries, through joint campaigns by NGOs, social movements and others.
2. Stimulate and create organisations and groups of NGOs and social movements to initiate, implement, follow, and evaluate the elements of this Treaty.
3. Produce materials to publicise this Treaty and its unfolding into educational action, in the form of texts, educational materials, courses, research, cultural events, media programmes, fairs of popular creativity, electronic mail, and other means.
4. Form an international coordination group to give continuity to the proposals in this Treaty.
5. Stimulate, create and develop networks of environmental educators.
6. Ensure the *1st* Planetary Meeting of Environmental Education for Sustainable Societies is held within three years.
7. Coordinate action to support social movements which are working for improving the quality of life, extending effective international solidarity.
8. Foster links between NGOs and social movements to review their strategies and programmes on environment and education.

V. Groups to be Involved

This Treaty is aimed at:

1. Organizations of social movements - ecologist, women, youth, ethnic, farmers', union, neighbourhood and artistic groups, and others.
2. NGOs committed to grass-roots social movements.
3. Professional educators interested in establishing programmes related to environmental issues in formal education systems and other educational activities.
4. Those responsible for the mass media who are ready to accept the challenge of openness and democracy, thus initiating a new concept of mass communication.
5. Scientists and scientific institutions that take ethical positions and are sympathetic to the

work of social movements and organizations.

6. Religious groups interested in working with social organizations and movements.

7. Local and national governments able to act in tune and in partnership with the aims of this Treaty.

8. Business people committed to working within a rationale of recovery, conservation and improvement of the environment and the quality of life.

9. Alternative communities that experience new lifestyles in harmony with the principles and aims of this Treaty.

VI. Resources

All signatories of this Treaty are committed to:

1. Allocating a significant part of their resources to the development of educational programmes related to an improvement of the environment and quality of life.

2. Demanding that governments allocate a significant percentage of Gross National Product to supporting programmes of environmental education in all sectors of public administration, with the direct participation of NGOs and social movements.

3. Propose economic policies that stimulate business to develop and apply appropriate technology and create environmental education programmes for the community, and as part of personnel training.

4. Encouraging funding agencies to prioritize and allocate significant resources to environmental education and ensure its presence in projects they approve wherever possible.

5. Contributing to the formation of a cooperative and decentralized global banking system for NGOs and social movements that will use part of its resources for educational programmes and at the same time be an exemplary exercise in using financial resources.

NGOs Working group on the Treaty on Environmental Education for Sustainable Societies and Global Responsibility.

Coordination: Moema Viezzer - ICAE, Brazil

Draft Group: Joelle Danant - AFGE, USA

Marcos Sorrentino - SODEMAP, Brazil Marta Benavides -MEDEPAZ, El Salvador Mnica

Simons - SAAE, Brazil
Nigel Hartley - SUM, SuicaN
Omar Ovalles - Habitat, Venezuela Rachel Trajber - FDE, Brazil

Collaborators: Arab States - ALECSO, Tunisia Africa - AALAE, Kenya
North America - FES, Canada Latin America - CEAAL, Chile Asia - ASPBAE, Macau
Europe - DCAE, Denmark
- WUS Germany
The Caribbean - CARCAE, Jamaica

Finally, with this text, we have the version of the Treaty on Environmental Education for Sustainable Societies and Global Responsibility, whose aim is to elicit the commitment of all active and interested people to a series of principles.

The process that led to the elaboration of this Treaty can be described in the following stages:

I. The elaboration of a Charter on Environmental Education in four languages, with the subsequent collection and systemisation of comments improving and modifying it from five continents between August 1991 and March 1992.

II. In March 1992 the then Charter on Environmental Education was introduced at the 4th Preparatory Committee (prepCom) in New York where it was re-elaborated by the NGO Education Working Group, which expanded it not only in terms of its concepts but also in its format and the composition of the group responsible for its development. It thus took on the characteristics of a Treaty, an international agreement to be signed by individuals and organisations concerned with education.

Guidelines were given by the NGO Coordination Group for UNCED for the elaboration of documents that contained: An Introduction, Principles, A Plan of Action, Coordination and Monitoring Mechanisms, Groups to be Involved, and Resources. The first two sections were discussed in New York.

III. In April/May 1992 the texts elaborated in New York were once again circulated internationally, thereby completing the drafts of the other four sections.

Finally this text was translated into four languages and printed for discussion in the Journey on Environmental Education in the context of Rio 92.

IV. During the Journey in June 1992 a last stage in the elaboration of the text led to a final version after 14 hours of discussion in plenary sessions and workshops, and many hours of incorporating and editing the additional proposals into the text. This version was then translated into the four languages adopted by the International NGO Forum.

The official launch of the Treaty took place on 7 June 1992, during an Eco-Carnival Parade

with the participation of 2000 children from the Samba School Flowers for Tomorrow, Brazil.

On 9 June the Treaty was presented to the plenary session of the International NGO Forum, after which a group met to discuss specific points which still required consensus. Some additional comments were made in the plenary and are included in an annex, reflecting the start of a new stage of implementing the Treaty which began in Rio. The process then also started to collect the signatures of those supporting and committed to the implementation of the Treaty.

V. Two plenaries on 11 and 13 June will complete this process, deciding collectively possible forms of coordination and monitoring in relation to the Treaty's implementation.

This act, unique in the history of civil society, shows commitment to change, and at the same time a demand that governments change.

Rio de Janeiro, 9th June 1992

APPENDIX THREE

Material sent to Phase One teachers, December 2000

The three documents on the pages 295-298 were contained in a posting to teachers mailed in early December 2000. These are a letter of explanation containing an invitation to continue their involvement in the project under expanded terms, a brief summary of the project, and a letter of consent. Copies of the latter two documents were to be initialled and returned.

Information sheet

David Chapman
Massey University College of Education Private Bag 11-222
PALMERSTON NORTH

5 December 2000

Dear.....

Hello team. I need to put a few things in writing to make sure there is a clear understanding about them and so that you are fully informed about the interviews we have had over the last two years.

When we started sharing ideas in 1999 I was hoping that by finding out how you were thinking during the environmental education course, and by keeping in touch with you as you went off into your teaching careers it might be possible to learn things that would make a positive contribution towards teaching environmental education. The reality however has not been like that. Although you all expressed the desire to 'make a difference' as teachers, from our interviews in early 2000 it is clear that none of you have really been able to target environmental education in your classrooms. I don't want to bias our final interview but it seems as I prepare for it that rather than finding out about teaching environmental education, we have discovered that it is very difficult to do environmental education in New Zealand schools. Of course you may all prove me wrong in our coming interview.

As group of committed and trained teachers have found it hard to teach for the environment, (remembering that you are beginning your careers) the problem seems to be more like: How could teachers be helped, let us say empowered, to teach environmental education. This seems to be a vital question if we want to address environmental issues through education.

Because of this I would like to interview you in more depth than in the past and try and find out if there are common problems that you have all had to face, or common pressures which have worked against your efforts.

There is a bit of extra push behind this for a number of reasons. One is that I am being encouraged to begin a PhD, which I have been thinking about for some time and this work would be a fine starting point. The second is that I am going to be involved in conducting teacher training workshops for the Ministry next year and beyond, and I want to do that well. The understandings that we are developing together would have a big impact on this. Finally, some of you are starting to drift off overseas and if I don't hurry you'll be gone.

In response to all this I would like to formalise the research relationships that is developing between us, to make sure you understand what is going on, and that your role is voluntary with the right of withdrawal at any stage. Attached are two copies of an outline of our work so far as I understand it and a letter consenting to continue in the interview process. It also outlines the conditions under which you do this. One copy of each is for your records and the other can be initialed, or signed as appropriate, and returned for my records.

I do hope you will agree to continue, for, apart from the research on environmental education, it is really fascinating at a personal level to keep in touch and see how you are all getting on. Sadly we are not usually able to do this.

Warm regards

David Chapman

Description of the Project

Description of the Work so far **1998**

During the course "Environmental Education", run as a special topic at Massey University College of Education, class members completed personal vignettes on the first day of the course and agreed to the collation of the material within them which was shared in class. This was done to clarify our collective starting point in environmental education.

Class members agreed to share their thoughts about the course at two stages; After the major essay assignment and at the end of the course. They chose an interviewer (not the course lecturer) and it was agreed that the lecturer would not look at this material until the course was completed so that comments could not reflect on those who made them.

At the end of the year class members were asked if they would like to participate in ongoing contact to see what happened to them in their beginning years teaching in the hope that this would develop knowledge about assisting teachers, especially in relation to environmental education.

1999

Eight of the class of twelve agreed to and participated in interviews between April and August of their first year in the classroom.

2000

The eight teachers were interviewed in early 2000 asking them to review their first year teaching and think about the year ahead. An interview, in depth, in December 2000 reviewing their first two years teaching is intended. This seeks to understand their teaching of environmental education and factors that influenced it.

Beyond 2000

The group could meet and share experiences and ideas for the future in a mutual support network.

Some of you might not agree to continue being "followed" but decide to

- . Be involved in the Ministry Workshops in 2001.
 - . Seek support from me when you need it or continue to work as a support group.
- Carry on doing your best.

Have you any ideas you would like to add?

David Chapman

Consent form

I agree to continue to participate in the research project that David Chapman is pursuing relating to environmental education and I understand that this contribution is subject to the following conditions and safeguards.

1.

My participation is completely voluntary and I may withdraw at any time without needing to provide any justification.

2.

I will have the opportunity to look over the information I have provided and withdraw any statements I do not feel comfortable with.

I understand that any information I provide will be reported in a way that does not identify me or the school in which I work or was working in at the time I was interviewed.

I understand that the intention of the research is to document and understand the things that happen to teachers as they begin their teaching careers, to reflect on these in the context of their teacher education preparation, to consider factors that influence their capacity to teach in the school context both in general and with particular reference to area of environmental education.

Signed:

Date:

Please return to:

David Chapman
Massey University College of Education Private Bag 11-222
P ALMERSTON NORTH

Information to participants sent in June 2001

The information sheet and consent form on pages 299-300 were approved by the Massey University College of Education Ethics Committee. This material was sent to Phase Two participants in June 2001 after they had indicated willingness to participate in the research. It was given to Phase Three teachers at their workshop in July, 2002, and to the remaining Phase One teachers in May 2002 when permission to have the interview tapes transcribed was sought. Phase four teachers were provided with the same material when they agreed to participate in the project.

Empowering teachers in environmental education

Information Sheet

Dear

This letter is an invitation to you to participate in an environmental education research project being carried out by me, David Chapman of Massey University, under the supervision of Professor John Codd and Dr. David Stewart.

All of these people can be contacted through the University switchboard by phoning (06) 3569099.

The study arises from a pilot project run between 1998 and 2000 involving a group of beginning teachers (the First group described below). The study found that although these teachers were keen to teach for the environment and had some ideas about how to do so, it in fact proved rather difficult. With only one exception they did not undertake what they themselves identified as environmental education teaching as a formally planned part of their programme. Thus, the study you are being invited to join seeks to investigate how teachers might be empowered to take on environmental education teaching in New Zealand schools. In order to try and shed light on the question teachers will be asked to share their teaching experiences and progress, or lack of it, in the area of environmental education in the hope of identifying factors that support or inhibit their teaching.

This 'sharing' will take the form of one or more interviews with me asking you to reflect on your environmental education development, teaching if that has occurred, and the factors that have been influencing them. The interviews might be expected to take about half to three quarters of an hour. We will conduct the interview in surroundings

that you choose and are comfortable with away from school. The interviews will be audio-taped so that they can be reviewed in detail but it is not intended to transcribe them.

Three groups of teachers are being asked to join the study. The first are teachers who have been involved in environmental education at Massey University College of Education. The second are teachers known to be involved in environmental education activities, while the third group is teachers who have been involved in the Ministry of education training workshops on environmental education. These are all people I have come into contact with in my own environmental education teaching and thus know that they have some interest in and commitment to the field.

I hope that you will agree to join this project on the basis that we are all concerned about the state of the environment and would like to do something about it through our role as educators. As my pilot study suggests however, teachers are under considerable pressure and introducing new studies to the school programme is not straightforward, despite the invitation by the Curriculum Framework to do so and the existence of environmental education guidelines. It is hoped that by sharing our experiences through a research project it might be possible to identify strategies which assist teachers, including aspects of school culture and organization, in order to provide effective support in the future. The results of the work could help plan more effective teacher training, provide insights into school organisational issues or curriculum planning, and provide information to the wider educational community about factors which support or hinder the enactment of environmental education in schools. It is a primary intention though that the work will help me to work with teachers and support them more effectively in this important field. The research will be written up as a doctoral thesis but parts of it may be published in other forms in order to disseminate the results to a wider audience.

The tapes will be stored in my office under the same conditions as other confidential work materials. It is intended that they will only be marked with the first name of the interviewee and thus be very hard for another person to identify the voice. The tapes will not be available to anyone else unless they have a legitimate research purpose and the written permission of the teacher concerned. It is intended to wipe the tapes after five years has elapsed from the initial publication of the research.

It is intended to report on the research in a way that obscures the identities of the teachers involved and the schools at which they worked. There are several reasons for this. It means in the first instance that teachers are able to talk honestly about their work without concern that they will be identified. Unless this honesty is basic to the research it will be of little value. This is a precautionary step though as it is not considered that work will be contentious. As well as this though, it is important to identify contextual factors in

a general way rather than those specific to a person or school so there is a more general reason for not identifying participants. Because the number of participants will be modest, and they are known to each other, it may not be possible to absolutely guarantee confidentiality and anonymity, however, all participants will have the opportunity to review their interview tapes if they wish. They will also be provided with a copy of the section of the research report which summarises the data from their interviews, and be invited to comment on any sections which they think could be associated with them or their context and assist in rewording such sections to avoid that possibility.

The purpose of this information sheet is to ensure that you are informed about all aspects of the research before agreeing to participate. Your participation is, of course, completely voluntary and you may decline to participate. If you do agree to join the project you still have the right to decline to answer any particular question, to withdraw from the study at any time, to seek further information about the work at any time and to be given access to a summary of the research findings when that is completed. It is also understood that any information provided during the study is given on the understanding that your name will not be used without your written permission to the researcher.

Thank you for taking the time to read this letter.

Yours faithfully,

David Chapman.

Empowering teachers in environmental education.

(Research conducted by David Chapman)

CONSENT FORM

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide information to the researcher on the understanding that my name will not be used without my permission.

(The information will be used only for this research and publications arising from this research project).

I agree to the interviews being audio taped.

I also understand that I have the right to ask for the audio tape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signed:

Name:

Date:

Request to allow transcription of the audiotapes

22 May 2002

Dear.....

Firstly, thank you for your contribution to my research so far. As you know I am trying to find what actually happens to teachers in schools relating to Environment Education. I have now undertaken something approaching fifty separate interviews and am finding the task of reviewing and summarising them myself very time consuming.

I am seeking your permission in this letter to have the tapes transcribed by someone else. This is a step which I did not seek your consent for in the earlier information sheet. The transcriptions would be carried out under the following conditions:

.The transcriber will be required to complete a confidentiality declaration.

.The transcribed interviews will be kept under the same conditions as the interview tapes as set out in the original information sheet. I have attached a further copy of this. You will have the opportunity to review the comments you made when I have completed this work.

I have supplied you with two copies of this letter, one for your own records and one which I hope you will sign and return to me. Once again, sincere thanks for your assistance with my work which I hope will lead to deeper understanding of teaching Environmental Education.

Yours sincerely

David Chapman

I consent to the transcription of interview material I have provided under the conditions outlined above, understanding that all the other conditions I previously consented to still apply.

.....

Confidentiality agreement signed by transcribers.

25 September 2002

Dear.....

Thank you for agreeing to transcribe interview tapes. I have done a number myself and know how hard it is. The participants in my research have shared their experiences in confidence. I need to be clear that although the material is quite uncontroversial and the identity of the people unclear, the interview material is none-the-less confidential.

Would you please sign a copy of this letter in order to confirm that you have understood this requirement of your transcription work.

Once again thank you, I greatly appreciate your assistance.

Yours sincerely

David Chapman

I have read this letter and understand the confidential nature of the interview material I am transcribing.

Signed:

.....

Material sent to participant with their interview transcripts

The letter and consent form below were sent to all participants with their interview transcripts in May 2003.

16 May 2003

Dear

I'm sorry it has taken me so long to get back in touch with you. You'll see that I have enclosed some interview material that you might recognise (it's you!). Some of it is now quite old but none-the-less it is extremely valuable and I would like to take this opportunity to tell you what I have been doing and about your contribution to it. I am quite sincere about this because you agreed to be part of my project to assist me to gain an understanding about environmental education in schools so that we could do it better. I have always hoped that I would be able to do a sound job so that our efforts would be environmental action that made a difference. In coming to the final stage I would like to report back and explain what I have done and what I have found out.

I started in 1999 following eight beginning teachers for two years to see how useful my environmental education course had been to them. Although only six made it to the end of the two years, all eight provided valuable insights on the particular experiences of beginning teachers (that involved twenty two interviews). I was then (early 2000) involved in some training workshops for the Ministry of Education. Eleven teachers volunteered to be interviewed twice, once after the workshops and then a year later.

There were the inevitable overseas experience losses but there were still another 15 interviews. In the meantime I got some of the original group back together, we had a workshop on the Ministry Environmental Education Guidelines and did some joint planning which I followed up on a year later in mid 2002 (four more interviews). Finally I found some people doing especially interesting environmental education activities and interviewed them about their work. Altogether, I have assembled close to fifty interviews over a period of four years - a lot of information.

The direction that my interpretation of this is heading in at present is as follows: In the majority of cases, concern for the environment and participation in courses does not result in teaching environmental education at school. The chief obstacles to this, I am forced to conclude, lie in the school itself. The programme is so full (note I did not say the curriculum) and the range of expectation on teachers are such that they do not get the space to try and develop new approaches. Sport, assemblies, musicals, paperwork and meetings choke your/their lives and it is at its worst when ERO comes. Many of you lament not even covering the formal curriculum and even when opportunities for environmental education offer themselves, somehow the energy needed to do things differently is not there. I am coming to the conclusion that schools have an incredible coercive power over their staff and the bigger the school the worse it is.

The biggest schools sometimes have organisational structures that are actively stifling of

teacher initiative. Only in the smallest schools does it seem teachers are able to meet the education requirements and innovate too.

When it does occur, environmental education activity quite often happens because teachers are able to 'borrow' the energy and expertise of outside agencies like DoC to overcome the obstacles. These obstacles seem to be more pronounced in secondary schools which are not only large but have rigid subject and timetable structures.

The people who do manage to begin environmental education activities have noticeably strong values. A remarkable proportion seem to have got these from their education in church schools but this is not always the case.

Even when people begin environmental education activities their background understanding is often not sufficient for them to tackle the core social issues that are captured in the guidelines in the concept of Interdependence.

Most starting activity involves the natural environment and recycling and there is little support available to go beyond these worthy beginnings. This brings me to the hard part, what needs to be done to make a difference?

In the first instance, environmental education needs to be emphasised in the curriculum. My suggestion is for a new Curriculum Framework whose principles must include social justice, citizenship, and environmental concern. These principles must be reflected by schools in their curriculum planning. Hence, they can happen without needing new subjects and curriculum rewrites. I have started advocating this position.

This is perhaps unlikely so what do we do in the meantime?

One problem is that schooling transmits many social values which are part of our unjust and greedy society (this is an area of sociology which can be complex). If teachers want to make a difference they need to confront a lot of the values in schools and curriculum as well as those in wider society held by parents. That means the teacher has to be on safe ground and in particular know the Curriculum backwards. Courses for teachers must focus on both these things. My reaction is to this "I have to do my own teaching better" to help people think about the issues, think about their own values and to clarify a moral position from which to work. This involves some hard issues: We can't care for each other and the planet if all we value is money. Does owning more stuff make us happy? And so on.

A further problem is the lack of curriculum materials. When I get this work written up I would like to write curriculum materials and support teachers. I will have done the theoretical work. Such materials will need to confront issues such as, our society is not really fair, which is very difficult to come to terms with. I am more and more convinced that despite our best efforts to help kids and encourage them in schools, our social system is quite cruel and schools help disguise that. My own courses now try to examine these issues more than they did. When teachers try to do something a bit different, the way schools are structured forms a straight jacket that you have to be very strong to escape. Thinking about how to do that has become central in a lot of my thinking.

My third strategy is to be more political and outspoken and raise these issues in a range of places. What I am finding is a lot of people seem to share a deep concern about our culture and its cruelty. (The Iraqi War is pretty worrying for example). Society seems out of control. I think we need to begin looking harder for some answers and make our democracy a bit more people and planet centred.

As I said earlier, writing teaching materials is where I think I will go next. The reason I am doing a doctorate however is that I hope people might take a little more notice when I say these things. If I do get there, I will have done it with your help!

When you read over your interview you can take out anything you don't like. PLEASE think carefully though. I know a lot of it seems a bit silly, full of 'ums' and pauses but please don't change things that you now feel differently about. The interview was how we thought back then. Take out anything you feel is incorrect.

Out of the whole 50 or so interviews, there were only couple of contentious things said. Remember you will not be able to be identified, no schools will be named, I will change your names and make all of you female to make identification harder. I am looking to capture general things about schools and teachers experiences. Please don't hide truthful things even if they are a bit tough. The truth is important.

If you want to add some comments after reading this letter and reading the interview transcripts, reflecting on anything at all, please feel free. I would add these as final comments to my work.

I would really like to have this back by the end of May please. If there is an unforeseen problem please contact me and let me know. Failing that and/or the material not arriving back at base I don't want to assume you are happy with it and that you don't wish to make changes.

On receipt of this letter could you send back the form attached so I know how you feel.

Once again, thank you for your support and effort. I hope that I can come up with some results to justify your effort, and which make a difference to teaching *for* the environment.

Kindest regards

David Chapman
Phone: (06) 356 9099, extn 8602

Email:

.D.J.Chapman@massey.ac.nz

Consent form

Dear David

I have received my interview transcripts and read your attached letter, and have indicated my intentions with my signature below.

I am satisfied with what I said in my interviews and happy for you to use the material as is.

Signed

I have enclosed the transcripts in edited form and am happy with the material they now contain.

Signed

I do not wish you to use the material.

Signed



Could you please add your contact address below in case there are any matters I might need to get in touch with you about. Please return this at the earliest possible opportunity please. I am extremely grateful and hope I will have an opportunity at some time the future to express my gratitude for your support.

Kind regards

David

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