PERMANENTLY PERIPHERAL? OPPORTUNITIES AND CONSTRAINTS IN AUSTRALIAN ENVIRONMENTAL EDUCATION

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It comes as little surprise that much reference has been made to the theme of 'Change' in this conference. Even first-time visitors to southern Africa (like me) cannot escape the imperative of addressing the theme of social, political and cultural change in this region of the world. And education self-evidently has an important role to play. A recent *International Development Program - Education Australia* document calling for proposals for projects establishing links between South African and Australian educational institutions speaks of the need to address the issue of education for social reconstruction. Improvement of the capabilities of higher educational institutions in South Africa to contribute to the Reconstruction and Development Programme (which also implicate primary and secondary schools) is a specific aim of the *International Development Programme.* So it is important to consider and perhaps restructure the role that education in general and environmental education in particular play in processes of social reconstruction.

Recent international discourses certainly assert a social reconstruction role for environmental education. At the 1992 United Nations Conference on Environment and Development, a non-government organisation (ICAE Environmental Education Programme) produced a document titled *Environmental Education for Sustainable Societies and Global Responsibility* which states *inter alia* that:

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

* 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.

* Environmental education is not neutral but is values based. It is an act for social transformation (NGO's International Forum, 1992)

In Australia, the recent national policy statements resonate to some extent with this social agenda for environmental education. It is the intent of this presentation to look very briefly at some of these new Australian policies and their relationships with practice. Emerging patterns and issues will then be considered.

THE POLICY CONTEXT: NATIONAL STATEMENT AND CURRICULUM PROFILE FOR STUDIES OF SOCIETY AND ENVIRONMENT

Australia, like England a few years earlier, has embarked on a course towards a national curriculum. National statements and curriculum profiles have been developed for each of the following learning areas: the Arts, English, Health and Physical Education, Languages other than English, Mathematics, Science, Technology, and Studies of Society and Environment. Although the interdisciplinary nature of environmental education was recognised by the Australian Education Council in their designation of four of these eight areas as paying particular attention to environmental concerns, the statement Studies of Society and Environment (SOSE) is the one most identifiably concerned with environmental education.

Each national statement sets out an agreed position on the curriculum, defining the area of learning, outlining its essential elements and showing what is distinctive to the area. The national profiles describe the typical progression of learning of students in the area, setting out eight levels of achievement and providing a basis for reporting student attainment. According to the consultation draft of the national statement on Studies of Society and Environment, it seeks to establish an

agreed direction in studies of society and environment for Australian schools for all levels of schooling and to provide a foundation for a profile of student achievement ... The final statement is intended to be a nationally agreed touchstone for curriculum development, a framework for use with school and system priorities, policies and guidelines. It is not a syllabus or guide for use in the classroom ... As a framework, this statement will inform curriculum resource development, teacher education in the fields and disciplines of this area, and professional development activities (Australian Education Commission, 1992-1993).

The SOSE statement is constructed around six key organisers or strands: five conceptual strands and one process strand. The five conceptual strands are time, continuity and change; place and space; culture; resources; and natural and social systems. The process strand is investigation, communication and participation.

Unlike many environmental discourses, SOSE does not seem to ascribe primacy to *science* as the ultimate referent in environmental issue resolution. It is explicit in recognising the proper role that values play in environmental issues, as evident in *A Statement on Studies of Society and Environment for Australian Schools* (1994:5-6). There are various legitimate and keenly contested views about how these values should translate into action, and debates about the meaning of democratic process, social justice, and ecological sustainability and about appropriate action. The three areas of values are among the criteria used for selecting and suggesting content in the strands and bands of this statement. They also provide challenging contexts for studies in each of the strands.

I would argue that the new National Curriculum in Australia represents 'change' in at least two ways:

* from a largely teacher-, school- and community-based form of curriculum development to a centrally organised activity;

* from an enduring perception of environmental education as a close relation of *science* education to an approach closest to *social* education, deliberately looking beyond empirical questions and implicating questions concerning social values:

- as substantive topics for study;

- as influencing educational activity; and

- as being shaped by educational activity.

Thus the National Curriculum certainly legitimates the engagement within environmental education of important social and social reconstruction issues. In what way the new centralisation of curriculum development resonates with this social agenda for environmental education is yet to be seen.

With this possible tension between aspiration and organisation in environmental education as a background, we will now look at several instances of environmental education practice through the 'window' of two contemporary research projects in environmental education.

WINDOWS TO PRACTICE: THE ARC AND NPDP PROJECTS

With colleagues in the Faculty of Education at Deakin University, I have been involved in two research and development projects funded by the Commonwealth Government. These projects address directly the relationships between current environmental education practice and the policy context outlined above. One of these projects, titled *Contestation over National and 'Community' Interests in the Development of Environmental Education*, was funded by the Australian Research Council (ARC). The other, titled *Environmental Education Across Australia*, was funded by the Commonwealth Department of Employment, Education and Training's National Professional Development Program (NPDP). Together, these two current projects have provided opportunities for a number of insights into what it is like for teachers of environmental education in this current context of policy development - or put another way, the relationship between developments at the level of language and those at the level of organisation and practice.

ARC project: Contestation over national and 'community' interests in the development of environmental education

The perspective adopted in the ARC project is perhaps best presented by quoting from the proposal. In the proposal we argued that there is a tension between recent government attempts to centralise control over curriculum development on the one hand and historically school-based environmental education activities on the other:

(i) There are a number of approaches to environmental education derived from the activities of different curriculum agencies and interest groups.

Aside from national and state initiatives, there is an Australian tradition of local initiatives in community-based, action-oriented environmental education in which curriculum content (knowledge about the issue) emerges from the school's enquiries. Rather than being provided as text in subject areas, what is learnt derives from involvement in particular environmental and social contexts. An important feature of this approach lies in the skills required of effective teachers and the consequences for the provision of professional development opportunities.

(ii) There are emerging conflicts over policy direction in environmental education.

For example, the Victorian Ministry, building on educational policy developments from the 1970's, recommends that schools should devise their own policies and programmes for a range of curriculum areas that incorporate the interests and abilities of the school community. However, the national Australian Education Council, although originally designating environmental education as an area for separate policy development, worked towards a national curriculum statement on *Studies of Society and Environment* which will have relevance for schools across Australia. In schools we find that many such policy 'changes' have the effect of creating a new layer of practice. Indeed the current policy of cutting central support and devolving decisions while trying secure changes in policy may, paradoxically, be the very thing that ensures their continued survival.

(iii) To some extent the National Curriculum experience in the United Kingdom (UK) provides a window to the future of Australian education.

The implementation of a National Curriculum is further advanced in the UK than in Australia. Recent research indicates that the position of environmental education in the UK National Curriculum is problematic and there is evidence of widespread concern about the marginalising effect that the National Curriculum has had on UK environmental education.

(iv) There is increasing international interest in the relationship of curriculum and professional development in environmental education.

A recent international project in environmental education coordinated by the Organisation for Economic Cooperation and Development's Centre for Research and Innovation (OECD-CERI) is focusing explicitly on these kinds of curriculum and professional development issues. It is clear from the work of this project, that community-based environmental education and accompanying forms of professional development is a critical research topic.

(v) The focus of this study is on the relationships among environmental education curriculum development and professional development in primary schools.

The National Curriculum is not just concerned with questions of what is learnt and taught but encourages new relationships among teachers, learners, subject matters and settings. This study will explore the impact of this new context on environmental education. It will examine relationships among recent environmental education policy (at national, state and local levels), practices (community-based school initiatives addressing local environmental issues), and professional development (support strategies for practitioners in their schools' initiatives). The intention is to develop a series of case studies which present contextualised descriptions of these relationships in environmental education.

(vi) Part of what is at stake in this study is a view of environmental education research itself.

Environmental education is often perceived, especially in North America, as a sub-set of science education. Research in science education has been dominated in the last few years by research on learning and is essentially non-social and non-political in its analysis. Environmental education, by its nature, calls for research that is more sensitive to social and political analysis ... (Robottom & Walker, 1993).

This project has now been in operation for three years, studying policy and practice in schools and centres in most Australian states and territories.

The National Professional Development Programme (NPDP)

In parallel with its national curriculum, the Commonwealth government has introduced the NPDP to assist teachers in their implementation of the statements and profiles of the national curriculum. Partnerships of universities, professional associations and employing authorities in all states and territories were invited to apply for funding to develop NPDP programs on particular topics within the eight key learning areas. The Australian Association for Environmental Education, in partnership with a number of universities and employing state and territory education systems, received a grant in 1994 to develop six NPDP programmes designed to provide access for all teachers across Australia to the philosophies, policies and practices of environmental education and to the potential for incorporating environmental education into the eight key learning areas. One of these programmes, *Environmental Education Across Australia,* is described below.

Environmental education across Australia

Essentially, the programme looks at relationships between contemporary policies in environmental education - and contemporary practices in schools, agencies and environmental education and field study centres active in environmental education. As we had many years of experience in offering mid-career professional development through distance education at Deakin University, we decided to develop the programme "in distance education mode" to ensure its availability to teachers in remote areas.

In developing this programme, rather than presenting the national curriculum statements and profiles as an unproblematic given, we introduced several relevant contemporary policy developments shaping what goes on in the name of environmental education in Australia today. We attempted to provide an overview of the current policy context nationally and internationally by including commentaries on The United Nations Conference on Environment and Development (UNCED) held at Rio de Janeiro in 1992, Ecologically Sustainable Development (ESD), the National (Australian) Landcare Programme, and of course the National Curriculum Statements and Profiles in SOSE.

In terms of representing environmental education practice, we wanted to recognise that environmental education takes different forms in different places and that teachers in different locations have different opportunities to do environmental education. We also wanted to provide a number of concrete examples of activity ideas in environmental education for participants to reflect on in light of their own classroom experiences. We did this by developing a series of video-taped case studies of environmental education practices drawn from schools and centres active in environmental education across Australia.

We attempted to develop these case studies through a participatory process. In order to encourage teachers to 'tell their own story' about environmental education in their own professional setting, we invited them to select and sequence about 35 visuals, and to compose a caption for each of these visuals. The visuals, and the caption as a voice-over, were committed to a video-tape. We visited each case study site for about three days for the purposes of interviewing parents, students, teachers and principals, collecting examples of students' work, and gathering school policy statements, prospectuses and the like. We prepared a five page commentary on each school, agency or centre to accompany the video-tape and the textual material we collected.

The nature of the professional development task in this programme is for participants to consider the relationships between a range of contemporary environmental and environmental education

policies and a range of environmental education practices. Assessment tasks require participants to consider the implications (opportunities and limitations) of these policies and practices for and within their own professional settings.

This programme can be undertaken in different ways depending on participants' circumstances. The programme can be studied as a distance education package by single teachers or in groups. Alternatively, depending on geographical location, the programme developers will be able to visit some sites for an initial four hour workshop (with the balance of the programme being undertaken by teachers in distance education mode) or a two day workshop in which most programme requirements can be met. This NPDP workshop has now been conducted at some 16 different sites throughout Australia and North America.

SOME PATTERNS FROM THE ARC AND NPDP CASE STUDIES

Outcomes of these two research projects include 14 case studies depicting the activities of primary and secondary schools, environmental education centres, and government and non-government agencies active in community environmental education. The next section outlines some of the patterns emerging from these case studies.

Diversity and contextuality

Perhaps like no other 'subject', environmental education is diverse. Much environmental education curriculum is constructed from an investigation of environmental issues (sometimes through text; sometimes through the senses; sometimes through active critical enquiries ...). Environmental issues are different in content and form in different localities. There are different stakeholders, different proposals for change, and different vested interests at work.

Whether or not we adopt a realist ontology with respect to the biophysical environment, environmental issues can be seen as historically, socially and culturally constructed, and their meaning and significance are related to those historical, social and cultural contexts. Add to this 'environmental diversity' the kind of 'educational

diversity' referred to by Scott (1994) - where he claims that in environmental education there are several elements of diversity including the practice (pedagogy), interpretation of terms, and readiness and ability to incorporate environmental education into courses - and environmental education can be seen as being 'doubly idiosyncratic'.

The diversity and contextuality of environmental education is demonstrated in the case studies presented in the NPDP programme *Environmental Education Across Australia* (Andrew & Robottom, 1995). For example, there are marked differences between a study of the effects of mining on water quality on the one hand, and an exploration of interpersonal and human/environment relationships using drama as a medium, on the other. In the first case, the environmental education programme is based on an investigation of water quality and natural features and resources within a remote northern mining community comprising western European and indigenous Australian people with vastly differing appreciations of the value of the natural environment. In the second case, the programme is a drama-based exploration of issues of power and domination among teachers, students and environments within the setting of a fairly uniform middle class government city. These two contexts are poles apart and the environmental education programmes within these contexts reflect this disparity.

Professional dilemmas in environmental education

A related pattern is that environmental education gives rise to significant professional dilemmas, often associated with contextual exigencies.

Environmental education concerns itself with philosophical as well as empirical questions. While environmental education must certainly concern itself with investigating the empirical questions posed in all environmental issues, the distinctive feature of environmental education as a form of inquiry is that it also recognises and engages important philosophical questions (the political, social, cultural, ethical, religious implications of environmental change proposals).

As an example, in our NPDP project *Environmental Education Across Australia* (Andrew & Robottom, 1995), we address the issue of feral horses in the Australian environment. There are important empirical questions to be addressed including the size, distribution, and rate of increase of horse populations, and the effects they have on indigenous flora and fauna. Yet the nub of the issue is not ultimately resolvable through a process of answering these empirical questions. Ultimately, the issue turns on the philosophical questions of whether we *ought* to allow an animal in out-of-control populations in our national parks, and whether the rights of this large non-indigenous mammal *ought* to be greater than those of a small, non-descript indigenous plant which suffers significant damage under the hooves of the horse. An environmental education programme falls short if it does not address this philosophical question within the social, cultural and political contexts within which the feral horse problems occur. And unlike empirical questions, which are usually resolvable by recourse to sense data of some kind, philosophical questions concerning environmental issues can only be addressed and resolved through a process of extended community debate.

Professional dilemmas arise for the teacher in deciding how far to pursue these important philosophical questions and community debate. The experience of a teacher in one of our NPDP case studies illustrates this. In this example, the teacher was engaging in water quality testing in an Aboriginal community adjacent to a mining town in northern Australia. She realised that the mining company was responsible for certain negative environmental impacts. She had developed a personal philosophy in terms of which to appraise the negative impacts and the broader assumptions and mindsets associated with mining as a practice. She understood her own responsibilities as an environmental educator (in contrast, perhaps, with those of a 'trainer'). Yet she made a conscious decision to resile from an all-out critical exploration of the effects of the mining company on the local environment. Part of her reasoning embraced the employment issue in this culturally diverse remote community:

> Her basic thrust, to begin with, was environmental conservation and restoration.

She began the Gayngaru project with a basically instrumental philosophy where they could, in a small way, introduce the concept of training the students to become skilled resource managers. Industrial development, via the bauxite mine, was seen as an accepted given. It had produced the degradation and the students were to learn how to fix up the individual problems as they arose. As the programme developed, however, she began to question industrialism's use of nature and the power relations that keep it in place, especially given the fact that the owners did not want the mine. She began to understand the pervasive alienation from nature that the mine and its mechanistic systems had caused. She came to see that it is a bigger issue than just planting a few trees. She saw the need to challenge industrialism's philosophy which conceives of the earth only as an object of instrumental value. She has not, however, entered into this area with her students. She is nervous about the ramifications of socially critical education in a small town where most people are employed by the major mining company.

Sue herself is beginning to work through the practical implications of independent critical thought. She does not engage in values education or explicitly encourage her students to examine critically the source of their beliefs. It was interesting that when the environmental officer from the major mining company was teaching us to test for dissolved oxygen she began worrying about what we would do and who would we go to if something was wrong. Would the mining company take any notice of us? Would they cover up? All mines degrade, but how much is too much? Who asks these questions? Who answers them? What can we do? I felt this was a perfect situation to examine critically some of these issues. Sue, however, feels her students are too young to deal with the interdependence of ecological, political, social and economic issues (Spencer, D. in Andrew & Robottom, 1995).

The point here is that, perhaps unlike traditional science education and mathematics education, environmental education (perhaps like social education, health education and peace education) necessarily involves the teacher in a range of

professional dilemmas associated with the philosophical nature of the substantive issues being studied. This remains a significant issue for teachers, despite the fact that international policy statements (for example from UNCED) and curriculum statements (for example, in the Studies of Society and Environment) support this kind of environmental education.

Systemic and institutionalised marginalisation

Our current ARC research suggests that the introduction of the national/state curriculum statements and profiles coupled with new organisational structures like the Victorian *Schools of the Future* programme (and its interstate counterparts) are in the main unintentionally serving to marginalise environmental education. The new introduction of centralised state-wide testing (the Learning Assessment Programme) in all Key Learning Areas in Victoria will likely exacerbate this situation.

As an example of recent restructuring, the Victorian Government's *Schools of the Future* programme requires schools to develop a 'school charter' which identifies three priority areas for curriculum development for the next three years. The three priorities must be selected from the eight Key Learning Areas mentioned before (Environmental education is located within the last of these, Studies of Society and Environment ,SOSE). Our research, and that of the Victorian Government's Department of School Education itself, shows that most schools are selecting Key Learning Areas *other than* SOSE as priority areas in their first School Charters. For example, Brown (1995:6) presents statistical data on the curriculum priorities chosen by a sample of Victorian schools which show clearly that

> English, maths, health and physical education and Languages other than English (LOTE) will be the major focus for improvement in these schools over the next three years.

It could be argued that a continuation of this pattern will result in a lack of systemic and institutional resources for environmental education.

Environmental educators tend to be outward looking, seeking to establish bridges with the community

Our current ARC and NPDP projects suggest that environmental education in Australian primary schools increasingly involves collaboration with a range of community agencies - collaborative links between schools and community groups are becoming stronger and more common. We suspect that one of the reasons for this is the issue referred to above - that restructuring and new systemic demands result in a diminishment of resources for environmental education, with the result that schools are looking outwards to community links as sources of support.

Experience with the NPDP has shown the strong desire among teachers of environmental education seeking mutually supportive links with community environmental groups. In the NPDP *Environmental Education Across Australia* (Andrew & Robottom, 1995) project, we have conducted extended professional development workshops in six states and territories, and found a consistent pattern among workshop participants of functional linkages with community groups and agencies. Teachers are looking outwards from the school to the community for curriculum ideas as well as human and financial resources.

Ironically, this pattern of seeking partnerships with community groups, while possibly a forced one resulting from educational restructuring, is nonetheless consistent with national and international discourses in environmental education which demonstrate a strong rhetorical commitment to the notion of 'community'. For instance, policy statements emanating from UNCED and the Commonwealth Government's commitment to ESD both mobilise and imply definitions of environmental education that step beyond the notion of education as something only to be found in school classrooms. The Rio Declaration on the Environment and Development, endorsed at UNCED, sets out 27 principles to guide the international community towards global sustainable development. Principle 10 states that:

> 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 ... 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 (Commonwealth of Australia, 1992:119)

Further, principles 20, 21 and 22 address the importance of the role of women, youth and indigenous people and their communities in achieving ESD. These issues are under-represented in much of the literature in environmental education teaching and curriculum practice. In Australia, the programme which most strongly (and successfully) reflects the influence of these ideas is the National Landcare Programme. Andrew Campbell, the first National Landcare Facilitator explains:

> The distinguishing marks of Landcare are that it is voluntary; the agenda of each group is set very much by the people within it; each group operates in a way that best suits it; there is no one looking over their shoulder to check that they do things absolutely by the book; there is no book. Landcare groups allow people to see that they have capacity within their own community to deal constructively with issues that seem too big for individual families ... There are resources and skills within each community, each member of a Landcare group has different skills to offer - women, men and children (Campbell, 1994: 33).

The new nexus between schools and community agencies in environmental education is not just one of mutual convenience and temporary alliance, but juxtaposes differing views and purposes of education and research. Networks, media and popular culture coverage of environmental events as well as the more concrete 'on the ground' collaborative links between schools and community land and animal management groups bring together a range of differing views of education and research, juxtaposing different positions in relation to:

* the origin, nature and status of knowledge;
* the relationship between research and knowledge;
* the role of scientific expertise;
* the relationship of scientific expertise and status of knowledge;
* the role of government in community education;
* the economic interests and environmental interests; and
* the educative role of popular culture and the new information networks.

The relationship of schools (formal education) and community groups (and their efforts in informal education) is a topic for further research in environmental education.

Environmental education and personal commitment

While these prominent links with the community imply the importance of a collaborative element in environmental education, there is in my view an equally undeniable element of personal commitment evident in instances of high quality environmental education. Even in circumstances that do not encourage environmental education, teachers with a personal environmentalist ideology seem to find a way to continue teaching environmental education regardless of imposed organisational changes. On the other hand, those most susceptible to changing policy seem to be those environmental educators who do not have a personal commitment to environmental education and are willing to change the focus of their work in accordance with the 'flavour of the month'. One strong message from our research is that most people who are involved in successful environmental education are involved because of personal commitment rather than perceived obligation.

Palmer (1993, 1996)of has conducted research into what she calls 'Emergent Environmentalism'. In this work she studies the relative importance of various categories of influence and formative life experiences on the development of environmental educators' knowledge and concern for the environment. Her work clearly demonstrates that teachers of environmental education tend to possess a strong commitment to environmentalism, and that this commitment tends

to be shaped by family and childhood experiences outdoors:

> The most influential factor in developing personal concern for the environment is childhood experiences of nature and the countryside. In the life stories there were many vivid accounts of early experiences of the natural world, testifying to their importance. The role of the family and other adults in awakening and fostering such interest was another recurrent theme in all age groups (Palmer, 1996:119).

While Palmer is concerned mainly with the *nature* of the factors shaping environmental commitment, I wish to stress here that teachers of environmental education tend to be able to express very clearly that they have such a commitment and that this commitment to environmentalism forms a very important part of a personal professional philosophy or theory that guides their teaching. An Australian teacher of environmental education, corresponding with Deakin University researchers as part of an Australian contribution to Palmer's current project, illustrates this point:

> *The collection of life experiences and formative influences, which have contributed to my present concern for the environment and which has lead me to embrace environmental education, are many and varied.*
>
> *I believe the single most important influence has resulted directly from my childhood experiences. Here I was steeped in a love of the earth, of the very soil that sustains existence, of air, of our eternal sun, our indestructible water and the self-replenishing nature of life. From this childhood relationship, I believe, directly arises the knowledge, attitude and hope for the world today.*
>
> *My interest in environmental education grew along with an increasing awareness of our altered landscape and my more specific development as a 'field naturalist'. There were many, many influences along the way, some very minor, some major, that have collectively moulded my current way of being. There are many gaps in my development - but nothing is*

> *more powerful than the innate mindfulness that was laid down in my formative years.*

There is a distinction to be made between 'personal commitment' and 'individual attitude'.

By the former, we mean something that is historical, contextual, and associated with a personal professional philosophy of environmentalism. However the latter notion of 'individual attitude' is often reduced by behaviourist researchers to specific variables that are thought to be amenable to external control. Doing justice to the former implies storytelling and case study with a view to recognising and supporting the full expression of the personal philosophies of practitioners. Doing justice to the latter is sometimes seen as requiring a technical, impersonal behaviourist approach with the effect of denying the existence of practitioners' personal professional philosophies (Robottom & Hart, 1995).

SOME FURTHER QUESTIONS

In the previous sections, I have described a number of patterns that I see as emerging in Australian environmental education. In light of these patterns, we can ask a number of questions about contemporary environmental education:

In curriculum development in environmental education, is increased central control over education 'good for' the field of environmental education?

In the ARC project we explored the tension between central and community interests in environmental education. We were interested in the relationship between moves to centralise control over curriculum- and professional development on the one hand, and curriculum practices which had historically been distinctly community-based, on the other. In our view the national curriculum is potentially at odds with the form of environmental education in which teachers develop their own curriculum ideas and 'content' from environmental issues that are local to the very community of which the school is a part. We have found that some of the efforts to restructure education have served to marginalise environmental education, in the short term at least. We also found that almost

in spite of movements to centralise control over curriculum, teachers active in environmental education have found ways to support their own curriculum work by establishing links with a range of community agencies.

There is another reason for questioning whether increased central control over education is 'good for' the field of environmental education. We considered earlier the UNCED NGO prescription that environmental education ought to be concerning itself with pressing social issues and indeed with social transformation. This would seem consistent with some government perspectives on the role of education in both South Africa and Australia. But as Tandon (1988) and Buzzati-Traverso (a key figure in the UNESCO-UNEP Environmental Education Programme of the 1970's) warn us, the political role of educational bureaucracies can be contrary to the very social transformation that is becoming part of the environmental education agenda:

> Control over knowledge production systems, dissemination and use of knowledge, and access to knowledge historically have been used in different societies to continue the systems of domination of the few against the many, to preserve the status quo and to undermine the forces of social transformation (Tandon, 1988:6).

> At any one time, the educational system - whether based on religious dogmas and practices or on rational thought - has tried to divulge, sustain and perpetuate sets of social values. The process has occurred sometimes openly, at other times through devious channels. If you consider the world today and examine the diverse educational systems, you can clearly identify competing ideologies: those which are attempting to hold on to recognised and almost undisputed values, and those which have launched a major strategy for conquering the world and men's [sic] minds.

> In other terms, behind any educational process lies a philosophy, a moral philosophy, for the people who exert power and are in charge of educational institutions share certain values, which they wish to disseminate in order to

ensure the prolongation , if not the indefinite survival, of the system they are devoted to (Buzzati-Traverso, 1977).

In light of this tension, it is perhaps appropriate to refer again to the National Landcare Project. Landcare has grown to become a major movement in the rural areas of Australia, particularly with the support of Commonwealth government funding Campbell (1994:31) explains:

> A Landcare group is basically a group of people concerned about land degradation problems, who are interested in working together to do something positive for the long-term health of the land. Most Landcare groups are rural, although there is a rapidly growing number of groups along the coast and in urban areas concerned with protecting sand dunes or improving the management of creeks, parks, public reserves and other open spaces ...

Landcare projects are significant in part because they represent a Commonwealth government initiative that operates through devolution of responsibility to local environmental groups, and therefore depend for their success on the collaborative activity of groups which usually have a diverse membership in terms of background and interests. The groups themselves determine which environmental issues they intend to address, their own project perspective for investigating and dealing with these issues, their own funding proposals for addressing these issues, and the ways in which they carry out the educative role of communicating the outcomes of these projects. A significant amount of community knowledge about environmental group operations and about environmental issues is generated through Landcare projects.

It could be argued that Landcare groups are concerned with a form of 'community knowledge' that differs from that proffered in formal educational institutions. It is *generative* in that it is produced by the Landcare groups themselves rather than being imported from outside the group. It is *opportunistic* in the sense that it responds in unforeseeable ways to perceived needs that might apply for only a limited period. It is also *contextual* and *issues-related* in that its meaning is intelligible only in terms of the land-

management issues and environmental context in which it was generated. Unlike school-based knowledge, Landcare knowledge is *non-disciplinary*; its credibility is seen as lying in its community origins rather than its relationship with pre-existing, discipline-based subject matter. So in a sense, Landcare celebrates a form of knowledge which differs in emergence, form and status differ from that of institutional education.

To the extent that this is true, Landcare may represent an instance of central government funding and organisation of a process that strengthens rather than weakens community control over management of local environmental issues, with the generation of meaningful 'community knowledge' a significant outcome. The question of whether the National Curriculum developments, as an instance of central government organisational control more directly concerned with formal education, can be as successful in encouraging environmental education relevant to local communities, is one for further research.

In professional development in environmental education, should we be putting our energies into 'supporting the converted' rather than 'converting the unconverted'?

As part of our ARC research, we organised a weekend retreat and invited some twenty active environmental educators to come and simply talk freely about their experiences as teachers of environmental education in a range of school settings around Australia. Some of the participants saw their role in their institutions as creating strategies for 'converting the unconverted'. Given the strongly contextual nature of environmental education, 'converting the unconverted' may be more successful if we concentrated on supporting and developing a personal philosophical commitment to the ideals of environmental education rather than restricting our role to the provision of the 'tips and tricks' and 'train the trainer' approaches, neither of which recognises the idiosyncrasy of the professional dilemmas encountered by teachers of environmental education. A more extreme view, given the importance of a personal commitment to environmentalism in the teaching of environmental education, is that the field might be better served

by putting our professional development energy into 'supporting the converted' - the already committed teacher of environmental education - rather than attempting to 'convert the unconverted'.

Given its critical orientation, is environmental education perhaps better served by remaining 'permanently peripheral' - a form of border pedagogy rather than an institutionalised subject within the curriculum?

On a similar theme, perhaps environmental education needs to be permanently peripheral if that is what it takes to ensure that those with a personal commitment are more likely to teach it, and that it retains its critical edge. If environmental education is institutionalised (made a mainstream 'subject') it will tend to be taught through a perceived obligation (not necessarily through personal commitment), using centrally-indicated content (rather than being based on and derived from issues of community interest), and evaluated in a way that emphasises the more readily assessable technical knowledge and skills usually associated with education 'about' and 'in' the environment. In a sense the changes associated with the restructuring of education in Victoria at least (in the *Schools of the Future* programme and the imminent statewide testing programmes) are forcing environmental education to the margins anyway (at least in the short term), with the result, as we have noted, that teachers and students are forming links with local community groups. It could be argued that a form of environmental education occupying the margins of the school curriculum, being taught by teachers with real environmental commitment relating strongly to environmental issues of interest and concern within their own communities and drawing conceptual, financial and human resources from that community, is more in keeping with the ethos of the critical, community-based environmental education prescribed in some contemporary policy statements.

What are the implications for research in environmental education?

The position we have adopted in our own research is that deliberations about the appropriate methods

of research and evaluation in environmental education are influenced strongly by our conceptions of inquiry, our assumptions about knowledge and reality, and, ultimately, our paradigms or worldviews. We believe that conceptions about what counts as research and evaluation within environmental education are multiple and varied and can be seen to be embedded within larger debates, about methods and paradigms, within the field of education. We believe that environmental educators need to engage debate on what qualifies as educational inquiry, to be able to reflect critically on the assumptions that underpin research and evaluation methods, and to be capable of well grounded educational enquiries into their own and others practices as well (Robottom & Hart, 1993).

Since the late 1960's, as educational case study methods have been developed to examine curriculum issues change, there has been growing awareness of the problematic nature of what has come to be called the problem of 'realist ethnography'. The empiricist notion that description is a simple mirror to events which can be treated as quite apart from the observer has been a major source of debate in the social sciences at the heart of which are questions about language and subjectivity (Clifford & Marcus, 1986; Geertz, 1988; Okely & Callaway, 1992). One of the consequences of this debate has been the realisation that research is not just about education, but has itself the capacity to be educational. Methods and research strategies have evolved which bridge the gaps between case study and action research, which look for ways to involve participants in the study and which treat biography and identity as central concerns.

In the current ARC project we have demonstrated case study methods to be effective in studying environmental education in schools. We have also moved beyond the school to focus the case studies in the community, a shift that has involved looking less at formal organisational structures and more at individuals, families and networks. Our reading of the literature is that very little research has looked at community action in this way, despite its significance for major programs like Landcare. Doyle & Kellow (1995) for instance, have approached similar questions from a political perspective, but they give little attention to

education and the empirical basis for their analysis is thin. School case study methods developed from a participant observation tradition in the sociology of organisations. What we need now is an equivalent methodological development which draws on established traditions of community study (Frankenberg ,1966; Wild, 1981) but which take into account both the critique of 'realist ethnography' and contemporary (and especially post-modern) revisions of the notion of 'community'.

In considering the implications for research of the patterns outlined above, we feel justified in claiming that:

ontologically, while the biophysical environment might or might not be viewed in realist terms - as objectively existing - the subject matters of environmental education research are environmental and environmental educational *issues*, and these are ineluctably socially constructed rather than realist in nature;

epistemologically, we come to know about environmental and environmental educational issues in a subjective, socially constructed fashion - again, the nature of the knowledge we deal in is ineluctably subjectivist;

ideologically, both the subject matters of our research, and the methods of the research itself, are pre-figured by and themselves entail a range of politically invested power relationships that ought to be declared and made explicit in any adequate approach to research; and

practically, environmental education research needs to:

* be contextual,
* be responsive to developing understandings about environmental and educational issues,
* be participatory, engaging naturally occurring discourses because it is within these that people's understandings of issues are articulated,
* negotiate iterative case study accounts with participants in order to protect their intellectual property rights as well as to

enhance the validity of the accounts; and
* recognise practitioners' philosophies and theories as well as practices, and that environmental education research needs to be praxiological in engaging the interactions of theory and practice.

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