

# **Social Transformation in Response to the Environment Crisis: The Role of Education and Research**

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## **Introduction**

In this paper I examine two activities which are often attributed with a role to play in social transformation, namely environmental education and research, for their potential to contribute to collective change. I do so by drawing on the results of a recent empirical study in southern Africa, in which I distinguished four orientations to research in/and environmental education. In exploring the transformatory roles of research and environmental education, as conceptualised in these four orientations, I conclude that the most prevalent orientations reveal modernistic assumptions which limit their potential to contribute to social transformation.

The decision to interpret the results by focusing on social transformation grew out of what I regarded as the most significant dimensions of the context of the study. These are the global and regional calls for social transformation in response to the environment crisis, the dramatic political changes in parts of southern Africa, the need to improve education in the region, and finally, less obvious global epistemological shifts in the conceptualisation of science, education and social research.

## **A Global Socio-Ecological Crisis and Calls for Social Transformation**

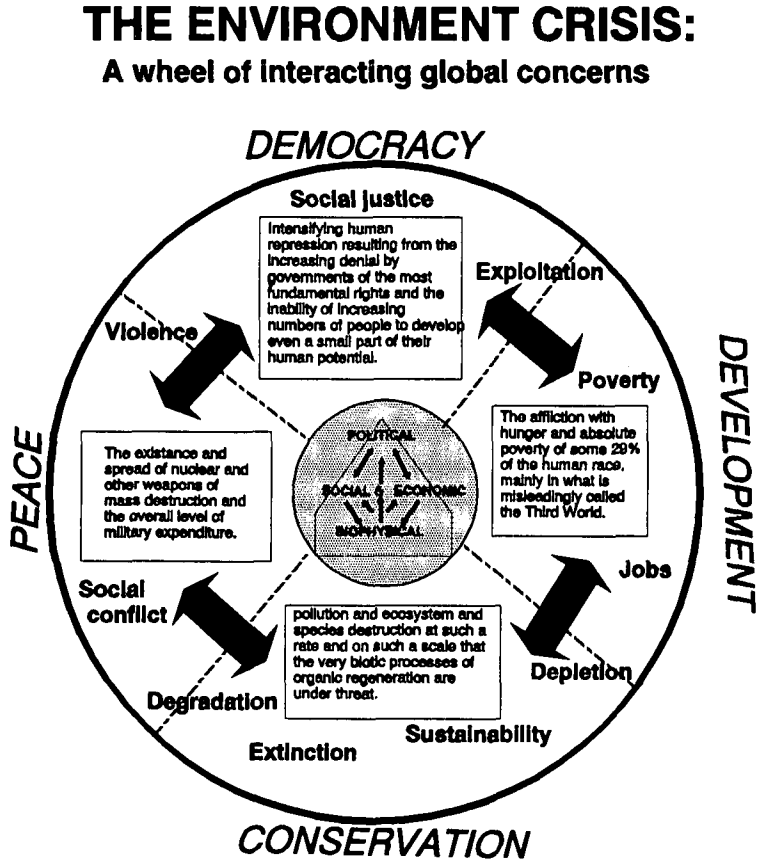
Growing awareness of the manifestation of developmental and other social problems in the bio-physical environment has been accompanied by a deeper understanding of the complex nature of socio-ecological issues. O'Donoghue, drawing on Ekins (1993), describes the environment crisis as 'a wheel of interacting global concerns' (O'Donoghue & Janse van Rensburg, 1994).

The central part of Figure 1 illustrates *the environment*, a social construct referring to interacting bio-physical and economic, political and other social systems and structures. Within the interactions between these dimensions, environmental issues (listed in the outer rim of the wheel) arise. It is clear that these issues are complex and interrelated. Their origins have been traced to deep-seated values, social systems and practices (see eg. Beck, 1992; Capra, 1983; Merchant, 1983). It is illuminating to consider underpinnings of the environment crisis as features of modernity

(which is not quite the argument, recently questioned by Kastenholtz and Erdmann (1994, p.16), that 'the achievements of the Enlightenment' should be seen as all bad and as 'the reasons for' the environment crisis).

**Fig. 1**

THE ENVIRONMENT (after O'Donoghue 1993a)



Modernity encompasses a worldview committed to material wealth, control (eg. over nature), progress, democracy, equality and rational enlightenment from myths. These ideals are in some respects unmet, as the persistence of poverty illustrates: wealth can be created, but only a minority benefits substantially (Ekins, 1993). The myths of the Middle Ages are exposed, only to be replaced by those of scientism (Beck, 1992). A shadow side of modernity also manifests in environmental degradation

or, to use Beck's label, 'the risks of wealth production'. Several authors have implicated features of modernity in the environment crisis. A cursory list of such features would be:

- \* an uncritical belief in science (scientism, discussed by Beck, 1992) a fixation on technique which becomes an end in itself (technicism; see Capra, 1983)
- \* an unquestioning belief in material progress (resulting in consumerism; see Huckle, 1991)
- \* the prevalence of the notion of the individual (evident in individualism as discussed by Robottom, 1991)
- \* a preoccupation with the structure of phenomena, as determinants of their function (structural functionalism; see O'Donoghue, 1993b).

Growing awareness of the environment crisis has predictably led to calls for changes to improve the situation. In the World Conservation Strategy (IUCN, 1980) scientists ask for 'changes in the behaviour of entire societies'. Others argue for a 'new world ethic' (Fien, 1993; Milbrath, 1984) and changes in those worldviews which sanction domination and exploitation (Huckle, 1991; Merchant, 1983). So profound are the desired changes that they have been termed social transformation.

### **Political and Educational Change in Southern Africa**

At the time of the study the Republic of South Africa (see map, Fig. 2) was undergoing dramatic 'institutionalised change' from oppression towards democracy, culminating in a momentous first non-racial election in April 1994. In the north-west of the region, Namibia was in its first years of majority rule after gaining independence from a South African regime in 1990. In both these countries policies and projects to redress the effects of institutionalised racism and to alleviate 'underdevelopment', were prime concerns of several of those workers in education, conservation and development who took part in the study. To the north-east Zimbabweans were similarly concerned with efforts to improve an 'underdeveloped' economy and physical environment, concerns shared by governmental and non-governmental groups in the poverty-stricken, mountainous kingdom of Lesotho.

Calls to address shortcomings and even crises in formal education were prevalent throughout the region, often utilising the discourse of international developments in educational theory and epistemology (ANC, 1994). In Namibia and South Africa these calls were also strongly related to political change (ANC, 1994; Hartshorne, 1992; Namibian Ministry of Education and Culture, 1993).

Against this backdrop it seemed necessary to interpret environmental education and research in environmental education in the context of social change. Both environmental education and research are widely regarded as having a role to play in such change, as the results of

the study confirmed. However, various authors (O'Donoghue, 1993b; Popkewitz, 1991; Robottom, 1991) argue that these proposed solutions to the risks of modernity are often based on the very assumptions which underpin the issues they seek to address. They propose perspectives from which environmental education and research are not the means to the goal of social change, but indeed processes of social change themselves.

**Fig. 2**

**Map of Southern Africa**

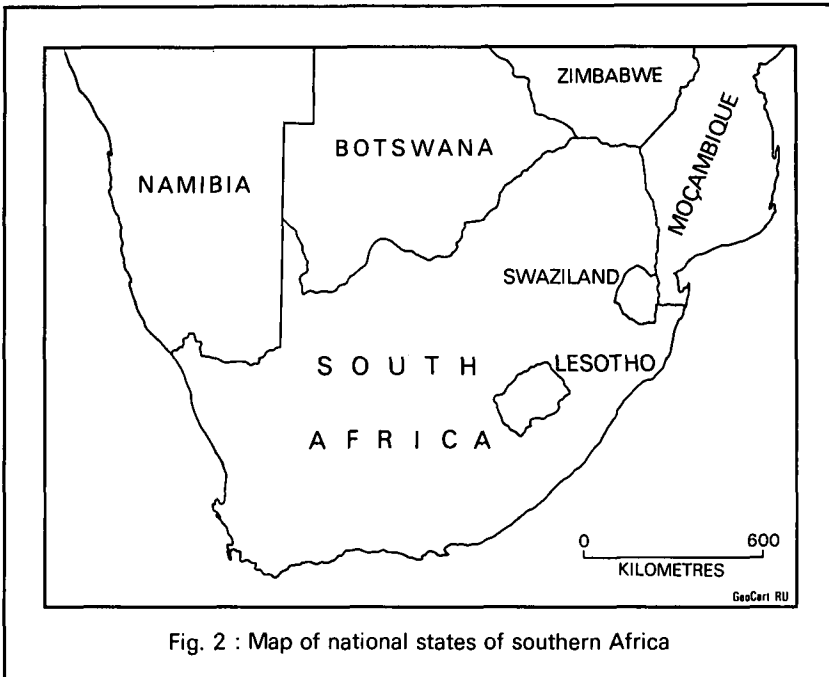


Fig. 2 : Map of national states of southern Africa

### **The Role of Education and Research in Social Transformation: Conventional Views**

Environmental education is widely regarded as a key response to the environment crisis. The 1992 United Nations Conference on Environment and Development concluded that:

Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues ... (Agenda 21, quoted in UNESCO-UNEP 1993, p.1).

A United Nations publication on environmental education (UNESCO-UNEP 1993, p.3) expresses the belief that '... the resolution ... of global change issues depends largely upon *behaviour changes* in humans brought about by *proper* education' and that environmental education is hence 'a major *vehicle* for imparting global change *instruction* ...' (my emphasis). It continues:

*Devising the right strategies* to involve people in the search for solutions and *providing* them with the knowledge, the skills and the motivations is absolutely vital in dealing with the phenomenon of global change. This could be achieved through environmental education whose objective is to develop a world population .... [of] environmentally responsible citizens (UNESCO-UNEP 1993, p.3, my emphasis).

These quotes from UNESCO/UNEP (The United Nations Environmental, Scientific and Cultural Organisation and the UN Environment Program) express a fairly conventional view of environmental education and what it needs to accomplish. They exemplify an instrumental, behaviourist and uncritical orientation to environmental education which is also prevalent in South Africa. Taylor, O'Donoghue & Clacherty (1993) expose such features in the South African Council for the Environment's proposed *Core Syllabus* (1993).

Convention assumes that environmental education is aimed at feeding information and awareness-raising experiences into a rather linear process of fairly passive learning which is ultimately to lead to behaviour change. Although it has been noted that 'research findings seem to show that the process leading to responsible behaviour is not quite so direct or straight-forward' (UNESCO-UNEP 1993, p.3), this is ascribed to 'quite a few variables' which have to be taken into account. The elements of reductionism and behaviourism which underpin the belief that increasing knowledge and awareness would lead to changes in attitudes and values and, eventually, behaviour, remain unquestioned.

There is also a lack of critical reflection on the meaning of goals like 'environmentally responsible behaviour' (UNESCO-UNEP 1993, pp.3-4), 'environmentally compatible behavior' (Kastenholz & Erdmann 1994, p.15), 'appropriate environmental behaviours' (Council for the Environment 1993, p.6), 'behaviour consistent with sustainable development' (Agenda 21, in UNESCO-UNEP 1993, p.1), and on the assumption that only certain kinds of expertise would be shaping that behaviour. The suppositions seem to be that scientists and their messengers, the educators, know how to solve environmental problems, and if we can devise the best techniques to communicate (or provide) the information or messages, individuals would take heed and **rationaly**

change their behaviour; these individual actions would add up and solve the crisis. The assumptions of scientism, technicism, rationalism and individualism, are conspicuous.

Like education, research is often regarded as a key contributor to processes of change, despite sobering historical analyses that reveal the contrary (Popkewitz 1984, 1991).

Many environmental education-related research projects in South Africa<sup>2</sup> (see Janse van Rensburg & Irwin, 1993) are based on assumptions similar to those outlined above. Examples are studies into existing attitudes, perceptions and values (of different groupings of people in particular), tacitly or explicitly to find out what the 'deficit' is that the educator needs to make up, and research into the readiness of different groups to respond to certain communications or educational 'inputs'. The aims of such research seem to be explanation, prediction and better management through better technique. With the focus on 'creating appropriate behaviour patterns' and the assumption that there are experts who always know best, environmental education seems to be viewed as a tool for managing the behaviour of others, and research as a means to hone the tool.

This study reflects on a time and a region in which educators, researchers and policy-makers are seeking ways to ameliorate critical socio-ecological conditions. Thus it seems important to assess which ways and forms of research and education are most likely to stimulate, inform, or contribute in some other way to, social transformation. For an exploration of this question the focus now shifts to the study and its results.

*An exploration of orientations to research in environmental education in southern Africa*

This meta-research project, undertaken between 1991 and 1994, focuses on the nature, role and potential of research in environmental education. It explores research participants' views on the nature of environmental education, the role of research, on who should be doing research and for whom, and on perceived priorities in terms of research areas, topics and methodology. The study was to inform funders of research and to support the growing number of environmental education researchers in the region, particularly those in the Masters in Environmental Education program at Rhodes University, South Africa. The latter program draws its students from various parts of southern Africa. This explains the regional scope of the study (see Fig. 2), which included interviewees from Namibia (n=7), Zimbabwe (6), Lesotho (1) and South Africa, including its former 'black homelands' (n=24).

The research design was based on 'multiple cycles of enquiry' (Rowan, 1981, p.105). Data collection techniques included semi-structured interviews (Burroughs, 1975) with 38 key informants (from the professional contexts listed in Table I), and workshops and focus group discussions (Anderson, 1991) with practising environmental educators, natural and social scientists, development workers and natural resource managers from throughout the region.

**Table I:**  
Professional context of key interviewees

|   |                 |
|---|-----------------|
| Conservation agencies                     | 14 Interviewees |
| Government education departments          | 3               |
| Environmental education centres           | 5               |
| Technikons                                | 1               |
| Colleges of education                     | 1               |
| English-speaking universities             | 6               |
| Afrikaans-speaking universities           | 3               |
| Social science departments & institutes   | 6               |
| Natural science departments & institutes  | 4               |
| Independent education resource developers | 4               |
| Community-based/Development organisations | 5               |
| Funding agencies                          | 2               |

*Research Results: Descriptions of Orientations to Environmental Education, Research and Change*

In the interpretation of the discourse (including policy and practice) of interviewees and other research participants, I identified four different orientations related to their views on environmental education, research and change. I do not construe these orientations (or positions) as distinct categories, but rather as shifting territories on a map - 'territories' which are closer or further apart from each other, and to a greater or lesser extent contested.

All participants' views overlapped broadly with these four positions, and there were substantial similarities between individuals' views on change, research and education. This does however not imply a great deal of coherence within all participants' discourse; in several cases the discourse was marked by substantial inconsistencies or ambiguities. It is useful to view each research participant's orientation as the coinciding of a number of different strands, some of which were contradictory, but the majority of which would be consistent with a particular orientation. This is more appropriate than to 'label' or 'box' participants into discrete 'categories' - as they themselves sometimes tended to do!

To describe and identify the various positions on environmental education, research and change with reference to social change, I use four

metaphors: Environmental education and research for the Restoration of Order, for the Resolution of Practical Problems, for Reconstruction, and as Reflexive Processes of Change.

*Change as Restoring Order - the Management Orientation*

This position is made up of the following cluster of views expressed by participants. Firstly, it is believed that social change should be managed in an orderly fashion and that the global behavioural change which is to solve the environment crisis will restore a presumed innate order to society and nature. An example would be the view of an interviewee from a governmental conservation agency, that there is (and I translate)

only two very important rules that regulate everything on earth: the first is how to organise society and the other is how to organise natural resources; the balance between these two is survival management.

He believed that South Africa and all its peoples were to be organised so that we would be able to live with each other, within our 'natural' ethnic diversity and within the limits of our natural resources. This was to be achieved through 'the education process', which would remove disagreements and conflicts and make people realise that resources are limited.

Several other participants (and I quote from them) shared this orientation, in which the role of education is to assist in the 'management' process, by 'communicating' expert-derived 'messages' to those others who need to change their individual habits ('behaviour') and to accept a certain ethical code. The teacher or developer is seen as an expert 'delivering' the scientific knowledge which is the primary solution to environmental issues. Those in need of knowledge or development represent containers which need to be 'filled' to certain 'levels' of awareness.

The role of research is to provide information which would make this communication better, for example by finding out what various groups of Others (the 'underprivileged', 'communities', 'the people', 'teachers', 'target' or 'recipient' groups, 'the layman') already know, think, feel or value in order to 'customise' one's education program and to better 'reach' or 'penetrate' them, or 'effect better communication'; or by evaluating the effectiveness of various 'information transfer' techniques. A predominantly instrumental view of research emerged in this group: research aimed at finding out 'how to ...' was listed as a research priority no less than 11 times in the report-backs from 10 groups of wildlife managers and natural scientists who participated in one workshop. Examples are research to find out how to 'manage society and nature better' ... how to 'communicate scientific results', how to 'rapidly educate

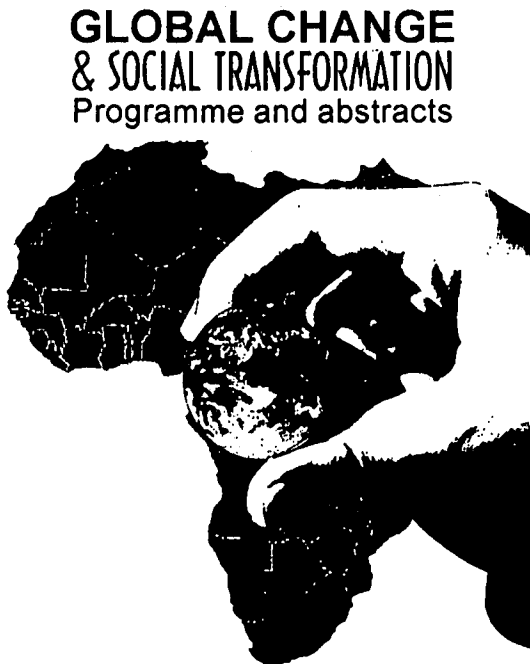


people on how to control population' ... 'reach communities' ... 'put the message across' ... 'communicate key environmental problems to key decision makers' ... or 'incorporate environmental education in formal education structures'.

This perspective was not only prevalent among natural resource managers and scientists, but also among curriculum developers and funders from government departments, members of state-linked conservation agencies and social and educational researchers from university departments with a positivist tradition. An illustration of this position comes from the program cover of a South African conference of mainly social scientists. Fig. 3 shows a human handling a distinctly separate and much smaller earth, thus depicting the conference's focus on 'the management of social change' (HSRC, 1993).

**Fig. 3**

A perspective on managing social change



With its expert-driven, behaviourist and instrumental features, the orientation described here is similar to the 'technical', 'empirical-analytic' and 'positivist' approach to research referred to by, *inter alia*, Habermas (1974), Popkewitz (1984) and, in the context of environmental education, Robottom & Hart (1993a, b). In some cases it might share ideological and philosophical strands with the authoritarian, Christian-nationalist orientation which had dominated perspectives on schooling in South Africa (Ashley, 1989) and with the technicist approach to education displayed by the international environmental education agencies mentioned above. Sterling (1993, p.89) refers to 'education for management and individual behaviour modification'.

*Change as the Resolution of Practical Problems - Community Problem-solving and Liberalism*

There seems to be mainly two broad trends diverging from the 'management orientation' outlined above, in southern Africa. The first of these is oriented towards resolving problems experienced by practitioners (such as teachers) 'on the ground' and by 'communities' (a term often used to refer to groups of people who share geographical locations and/or 'disadvantaged' conditions).

This cluster of opinions calls for improvements in current situations, not through radical change, but through solving existing practical problems and doing what is being done, better. Change is seen as the improvement of localised practice or 'practical' situations, with an emphasis on so-called 'basic' or 'real needs'. Hence the metaphor of 'resolving' practical problems. Here we encounter 'the rhetoric of a practical knowledge that will improve the life of teachers' (Popkewitz 1991, p.188) and other practitioners.

The nature and direction of change are to be set by a particular community or group of practitioners, within a particular context. They are to identify and solve their own problems, with the help of a developer or researcher who acts as 'facilitator' which refrains from imposing own ideals. Teachers, too, are 'facilitators' in relation to their students. Comments on education revealed a preference for 'experiential learning' and learner-centred approaches which could be linked to liberal educational ideologies (Ashley, 1989) in which the individual learner represents a seed to be nurtured into full bloom.

There was a strong emphasis on research that is 'relevant', 'practical' and resolving problems, either during the research process or immediately thereafter. Examples are needs analyses or rural appraisals aimed at helping communities to 'identify' and address their 'needs'; school-based case studies for deeper understanding of localised programs; research to 'improve' or formatively evaluate practice, and action research aimed at working out a specific problem. Research has a practical (as opposed to

technical) interest (Habermas, 1972), a perspective espoused strongly by several interviewees working in teacher education and community development settings. 'Practitioners are the real researchers', said one organiser of community - and school club-based projects, which he referred to as 'environmental education for the people'. If a 'non-practitioner' did research, it had to solve problems identified by practitioners, or in collaboration with them. It was thus also thought that research needs to be communicated to practitioners in a user-friendly way. Unless theory spoke to practitioners, it (and theorists) were seen to be elitist and irrelevant, 'up there'.

This orientation seems to reflect a reaction against both the expert-driven, 'top-down' orientation to education outlined above, and research removed from the needs of 'the practitioner' in both its conceptualisation and application - the stereotypical academic thesis that 'sits on a shelf somewhere'.

This cluster of views shows correspondence with what Popkewitz (1984, pp.139-146) labelled a Community-problem-solving approach, and later (Popkewitz 1991, p.230) a Popularist approach to research - 'taking the intellectual to the people'.

These views were most frequently expressed by those research participants who were involved in environmental education in non-governmental organisations and some state conservation bodies, or from social and educational departments at liberal universities. The discourse of several participants from relatively conservative contexts showed intertwining strands of both the Restoration and Resolution orientations; an example is one consultant's approach to community development: 'nurture and nudge!' It seems that these latter participants were either 'straddling' the two positions, or moving from one to the other.

### *Change as Reconstruction - a Critical Orientation*

The third orientation, which also questioned the positivist managerial perspective, shares characteristics with the interpretivist 'community problem-solving' approach, but differs substantially in that it takes a more radical view of what meaningful change would entail. Research participants whose views made up this orientation called for radical (root) 'shifts' within perceived discriminatory social structures, in, for example, political and educational systems and in conservation agencies. A key concern was the need to 'empower' perceived 'marginalised' groups, such as teachers or black youth, and to support 'capacity-building' among marginal or 'underdeveloped' groups in, say, South African 'squatter' settlements, the so-called 'Third World society' of Namibia, or rural Zimbabwe. Drawing on the critical theories underpinning liberation pedagogies (Ashley, 1989) such as 'people's education', the learner seemed to be viewed as a fire to be kindled with the flame of knowledge.

The notion of empowerment also underpinned calls for broad participation in research. Research was seen to have an educative and developmental role, through the transmission of existing knowledge, the democratic development of new knowledge, and the valuing of marginalised knowledge. In common with the practical orientation above was the aim of solving problems through research-in-action; the difference was an explicit emphasis here on dismantling oppressive socio-political structures through the processes of research and education. This orientation also dismissed the theory-practice dualism, by employing the idea of 'praxis'.

The views of research participants from development agencies with social-justice perspectives, a 'progressive' publishing company and social research and education departments in universities with critical/socialist orientations, made up this orientation. They saw research as a tool to develop a 'counter-hegemony', to 'mobilise mass support' for environmental issues and to 'pressurise government' into addressing the same. Other examples were research to 'shift' existing (education) policy, utilising participatory models which would allow those at 'the grassroots' to 'engage critically with policy as it is being generated'; and research which involved teachers collaboratively in 'radical' curriculum change.

This orientation shares characteristics with Habermas' emancipatory interest in research (1974) and the 'critical position' described by Popkewitz (1984) and Robottom & Hart (1993a, b). The southern African orientation does seem to differ from the North American and Australian position, however, in that more emphasis is placed here on the need for 'basic' ('given', as opposed to mediated) knowledge as part of capacity-building and prerequisite for empowerment.

### **Comment**

Before a fourth orientation to change, education and research is described, some comments on the potential and limitations of the above orientations, in the light of the study's focus on change, are appropriate.

The first orientation, that of managing social change towards the restoration of order, might have some application in situations where simple but less well-known solutions to particular problems exist. With most environmental issues, however, the solutions are all but simple. They need to be developed through dialogue and interaction (Beck, 1992, Quinlan, 1993) between scientists, other ordinary people and other specialists. The record of 'top-down' or 'Research-Design-Distribute-Assimilate' (Popkewitz, 1984) solutions and interventions is less than satisfactory, and in southern Africa reactions against this authoritarian (and perhaps naively arrogant) approach has been linked to reactions against oppressive political regimes and elitist environmental organisations. There are deep-seated reasons why this model of change is

unlikely to result in anything more than the semblance of reform: the empirical-analytic model of research on which it draws has design features which allows it only to describe and predict the expected (Popkewitz, 1984). Furthermore, the modernist assumptions of rational and technical control towards a presumed harmonious order in both nature and society are questionable. Quantum physics, chaos theory and related post-modern theories in education describes a universe in which constant and unexpected change, as well as uncertainty, has displaced notions of order and stability (Doll, 1989). Knowledge, including knowledge of the environment crisis, is increasingly seen as socially constructed, contingent and temporal rather than given, neutral and a-historical (Lather, 1991).

The second orientation, aimed at the resolution of practical problems, tries explicitly to overcome at least some of these weaknesses. It does so by de-centring the expert to become a more-or-less peripheral facilitator, and handing over the identification of problems and solutions to so-called 'communities' of learners. The strength of this orientation lies in the valuing of the learners. One of its limitations had been noted by Popkewitz (1984, pp.139-146) who claimed that the change brought about by research aimed simply at solving practical problems tends to be mere superficial reform, 'change as motion within a system' (p.174). Such projects, he argued, do not transcend the immediate practical problems and community sphere and do not recognise those constraints on action which have wider and deeper systemic roots. Robinson (1992) similarly claims that educational research is unable to bring about meaningful educational change when it fails to question and transform the 'action theories' of practitioners. Field (1991, p.72), clearly arguing for a more critical position, states that 'popular wisdom' is inadequate to generate sufficient understanding to bring about change, 'unless it is combined with the kinds of theoretical insights and analytical skills that are not taught through oppression'.

Critical theories explicitly address the so-called 'false consciousness' of conventional thinking. They have however also come under increasing scrutiny, from a post-modern perspective in particular. The limitations of the reconstructivist orientation include the rationalist, individualist and structuralist assumptions which underpin most critical theories, and which seem to subvert the realisation of transformatory ideals (Kohli, 1991; Nielsen, 1992). Quinlan (1993) is one of several southern African researchers, some of whom participated in this study, who experienced either difficulties with actualising these aims in practice, or contradictions in the twin roles of group leader/research initiator on the one hand and 'facilitator for empowerment' on the other. Popkewitz (1991, pp.236-237) highlights problems with the notion of 'empowerment'. These include the assumption that a researcher can empower others to redefine their experiences and be 'enlightened', and an indirectly utilitarian and realist

perspective on knowledge which critical theorists usually claim to reject (see Lather, 1991). Despite the differences in discourse and strategy this orientation therefore shares some of the modernistic ideals of the management orientation, and might for the same reasons fail to bring about the 'root' changes which its proponents aspire to.

In the southern African situation, at least, it would appear that orientations which become popular in response to perceived inadequacies in more widespread positions do not replace each other, but only provide different expressions for values, ideas and strategies which actually retain core characteristics.

### *Reflexivity and social processes of change*

This study identified a fourth, emerging orientation to change and research in/and environmental education. It is mentioned last, because it seems to avoid the problematic assumptions noted above. Lacking the single-minded face of 'unreflexive' modernity (Beck, 1992), it does not feature claims that research can bring about change. Social processes of change - which is how environmental education is conceptualised in this position - are however regarded as a focus for research, and it argues for a reflexive research orientation within environmental education.

The 'reflexive' orientation is concerned with broad processes of social transformation through 'critical and contextual review and action'. It proposes that social transformation is less likely to flow from individuals' learning about environmental issues in isolation, than from communities acting together on a common agenda, engaging with local issues. This means, *inter alia*, a move away from 'education for the Other'.

O'Donoghue's (1993a) recent conceptualisation of environmental education illustrates this emerging orientation (Fig. 4). It depicts a focus on developing solutions rather than giving information about problems, and a desire to take (mindful) action rather than to change habits (behaviour). It calls for a recognition of 'history' and 'context' when engaging with environmental issues. Learning is neither a linear, nor an individual process; within action and context, learning is stimulated by the interacting processes of 'encounter' with issues, 'dialogue' about those issues and 'reflection' upon them.

Interviews with research participants expressing this orientation reveal an emphasis on finding out more than on taking information in, and on 'developing the capacity for change' rather than on intervention to bring about change. Environmental education is seen as a collaborative and reflexive search for solutions, where reflexivity refers to 'critical social processes of experiential review' (O'Donoghue 1993b, p.37).

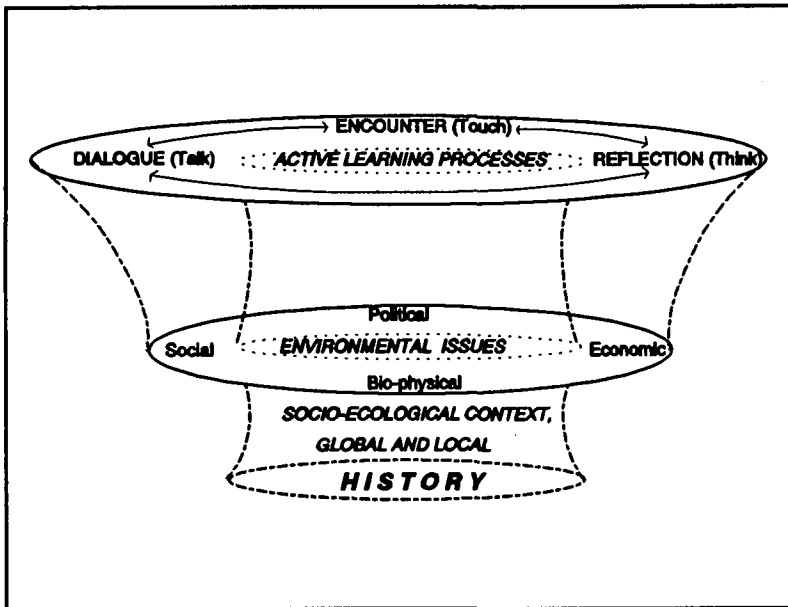
From this perspective the process of environmental education is by its critical and reflexive nature oriented towards 're-search'. Research becomes inseparable from the educational process, thus research *within*

rather than *on* or *for* environmental education.

Although only a few participants consistently reflected this position, the discourse of others showed traces of this orientation. 'Research is there in order for the issues to be in the open, for people to debate ...', noted one participant who also described his teacher education work as 'not divorced from the research aspect'. Further examples are calls for research of an 'open-ended' and 'reflective' nature, research which would 'clarify concepts and processes' and research to set up structures for 'on-going dialogue'. Quinlan (1993) suggests that social scientists' most important role in environmental impact assessments could be to initiate such dialogue between developers and developing communities.

**Fig. 4**

An emerging conceptualisation of environmental education (O'Donoghue, 1993a)



This emerging and perhaps transitional orientation to environmental education/research draws on current educational - and social theories, rather than on the conventional wisdoms of behaviourism, liberal-humanism and critical pedagogy. The notion of reflexivity can be explored in the work of Popkewitz (1991), Bourdieu (Jenkins, 1992) and Beck (1992), and authors like Bahktin (Wertsch, 1991b) and Wertsch (1991a) emphasised the social-situatedness of learning and the importance of dialogue.



## **Concluding Discussion**

In summary, the pattern of orientations to change which emerged in this study were:

- change as the restoration of order through management; utilising, for example, educational interventions such as curriculum innovations or information transfer;
- change as the resolution of practical problems through facilitation, within the conventional wisdom of a particular community;
- change as rationalist and radical reconstruction through empowerment; and
- change as diverse social and critically reflective processes.

The three most common orientations revealed in the discourse of the participants seem to fall short of the potential to bring about the substantial social change to which their proponents aspire. It is argued here that modernistic assumptions of the role of environmental education and research in social change limit that potential. These assumptions relate to:

- the instrumental notion of expert-induced behaviour change among individuals;
- an unquestioning faith in the ability of practical wisdom (dichotomised from theory) to substantially improve situations; and
- the notion of rational enlightenment through democratic participation in research.

The restoration/management position must assume that a legitimate core of scientists and developers/educators enjoy, with regards to the global crisis, a unique and superior position from which to direct change towards an ideal of social order. 'Resolution through community problem-solving' does not make these assumptions, but it does lack a critical and historical perspective. 'Critical research for reconstruction' overcomes the latter constraint, but seems to necessitate a researcher with superior insights, in a position of power from which to rationally 'em-power' others by legitimating their insights. It would thus seem that many of our views on change, research and environmental education are conceptualised and enacted from within modernistic assumptions.

### *Reconceptualisation of education and research for change*

The environment crisis draws our attention to the need to reflect on modernity, its ideals and the ways in which we attempt to realise them (Beck, 1992). Beck describes 'late modernity' as a period and position of reflexivity on and for those modernist ideals of thoughtful control, demystification and healthy living for all, which still apply. Thus reflexive modernisation is characterised by shifts in the ways in which science, environment and education are conceptualised.



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

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

Huckle (1991, p.43) cautions that:

... much environmental education is part of the problem rather than the solution. ... It is based on inadequate theory and practice yet receives increasing support from powerful elites who must manage the global ecological crisis in their own interests.

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

### Notes

- 1 I deal with environmental education and research in environmental education simultaneously, for reasons discussed in the section describing a reflexive orientation.
- 2 The lack of databases on research elsewhere in southern Africa make claims about prevailing trends there more difficult, but indications are that they are similar.
- 3 This study has been sponsored by Murray & Roberts, Rhodes University and the Human & National Resources in the Environment (HNRE) Programme of the Human Sciences Research Council (HSRC), South Africa.

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