REFLECTING ON SOCIALLY TRANSFORMATIVE ENVIRONMENTAL LITERACY FOR LESOTHO

Tsepo Mokuku & Eureta Janse van Rensburg

Ntlafatsa motho, motho o tla ntlafatsa naha
(Develop a person, and a person will develop the environment, J.J.N. Machobane)

This paper is an attempt to clarify the concept of environmental literacy from a socially transformative orientation. It resulted from our ongoing reflection on a conceptual framework in and for a three-year research project on education for environmental literacy within the integrated science curriculum in Lesotho.

INTRODUCTION

Like environmental awareness, the concept environmental literacy is often loosely used in the literature and our everyday work. In this study, an action research project involving teachers and university staff (Mokuku, 1995), environmental literacy was to be the core concept guiding the research team's actions. It thus required ongoing clarification of what environmental literacy meant in the context of Lesotho schools.

Here we identify one orientation to or perspective on the concept, which we will call 'socially transformative environmental literacy'. We will illustrate that this is a rare but very appropriate perspective on environmental literacy in this context.

Drawing on the literature and Mokuku's experience of living and teaching in Lesotho, we clarify the concept in terms of
* underpinnings of a socially transformative perspective
* associated perspectives on 'environment' and environmental problems
* associated perspectives on sustainable development and the role of local knowledge
* the curriculum, with reference to the role of the teacher; the view of disciplines; and the use of textbooks.

We end the discussion with comments on the implications for the study and formal education in Lesotho in general. The paper starts with a brief contextual overview.

CONTEXT

Modernism, associated with the scientific revolution of the 16th and 17th centuries, the Industrial Revolution and Enlightenment (see Blake, 1996; Lather, 1991; Littledyke, 1996) was introduced to Lesotho with the arrival of the missionaries in 1833 and reinforced by nearly a century of British colonial rule (1868-1966). British school curricula thereafter functioned as the powerhouse of modernism in Lesotho. From a modernist perspective scientific rationality is the appropriate basis for social reform (Blake, 1996). It may be argued that school curricula in Lesotho have largely functioned, without much success, to develop the values and assumptions of scientific rationality as the basis for development. These would include: a belief in absolute truth attainable through the application of the scientific method; a belief in the empirical and rational as the fundamentals of true knowledge; and a belief in the standardisation of knowledge and its production (Littledyke, 1996).

It could also be argued that the British school curricula have largely contributed to the deterioration of the quality of life of the majority of Basotho. Curriculum development records from the 1970's documented local educators' concern at the time that the school curricula "wean[ed] the child from his roots"and failed to adequately prepare learners to survive in their own environment. The associated problem was that "school leavers disappear to towns" (Institute of Education, 1975). The education system has for decades contributed to rather than prevented people's migration to urban centres, the breakdown of life support systems of rural communities, the notion of unemployment, and concomitant violence and crime. A further indictment of the present system is the fact that of every 1000 pupils entering primary education less than half (443) obtain a Primary Leaving Certificate. Of those pupils only 124 obtain a Junior Certificate pass, and of those a mere 28 eventually pass their Senior Secondary (Mathot, 1996).

At the same time education is not addressing the varied and complex environmental problems in the country, including severe land degradation, unem-

ployment and abject poverty (see Gay, Hall & Dedorath, 1990; Gay, Gill & Hall, 1995; Gysae-Edkins, 1994; IUCN, 1994; Khalikane, 1988; Lesotho, 1994; Weisfelder, 1997) and political instability (see Matlosa, 1997; Weisfelder, 1997).

This general failure of Lesotho's education for modernity point to anomalies within the presently dominant paradigm. In the light of these anomalies, to use Kuhn's (1970) concepts, a 'revolution' or 'paradigm shift' need to be considered. This consideration motivates the socially transformative perspective we explore here.

SOCIALLY TRANSFORMATIVE ENVIRONMENTAL LITERACY

Underpinnings of the Perspective

The perspective outlined here draws on a number of systems of meaning, namely: post-formal thinking (Kincheloe & Steinberg, 1993); a post-modern perspective (see Doll, 1989); socially critical theory and pedagogy (see Firth, 1996; Lather, 1986; Nielsen, 1992), the principles of contextual theology (Cochrane, 1996; Institute for Contextual Theology, 1994; Villa-Vicentio, 1994; West, 1993); and emancipatory action research (McKernan, 1991). These diverse systems share common elements around the notion of social transformation.

Post-formal thinking (Kincheloe & Steinberg, 1993) is concerned with subjugated knowledge, ways of knowing that have traditionally been excluded from the conversation of mainstream educators. Often contrasted with modernity, the post-modern label is "the code name for the crisis of confidence in the Western conceptual systems" associated with an emerging "exciting time of openness and questioning of the established paradigms" (Lather, 1991:7, 34).

The transformative potential of socially critical theory lies in its emphasis on the socio-political nature of knowledge. As Gough and Robottom (1993:305) put it "knowledge is seen as constructed through social interaction and thus as historically, culturally, politically and economically located; it has its meaning in the action of projects whose significance is in specific historical, political and economic contexts." Critical pedagogy is complemented by constructivist theories of learning (see Bodner, 1986) which explain that we actively construct knowledge for survival in contexts within which we are located.

Socially critical theory further illuminates that constructed knowledge is not neutral, but rather value-laden, shaped by the interplay of socio-cultural and political forces. Drawing on Habermas (1968), Bacchus (1990:298-299) refers to this view of knowledge as 'critical emancipatory knowledge,' while Lather (1986:259) writes of 'emancipatory knowledge' that uncovers contradictions in society and thus creates opportunities for transformation. Equally important is the recognition of the relationships of dominance and submission which underlie knowledge (Bacchus, 1990; Foucault, 1977; Firth, 1996). Knowledge and power are inextricably linked, and others may be controlled in the sharing of knowledge.

Principles of contextual theology include liberation, empowerment and social justice. Emancipatory action research (outlined e.g. in McKernan, 1991) is a strategy for problem-solving and the empowerment of educators and learners. How these concepts are being used to describe socially transformative environmental literacy will become clearer in the sections below.

Associated Views on Environment and Environmental Problems

From the perspective developed here, the environment is a dynamic web of interconnected biophysical, economic, political and socio-cultural contexts in which people are involved (EEPI, 1994). None of the parts of the web are as fundamental as the relationships between them. The nature of that interconnectedness shapes the form the web takes. The environmentally literate would also recognise the limitations of language used to define the environment in terms of the ambiguity of meaning in the terms used and the silences about other possible interpretations of environment (and environmental literacy).

In Lesotho the political dimension of the environment web requires that some environmental problems be traced to the colonial rule (Rodriguez, 1995). For example, prior to the British rule in 1868 Basotho had evolved a system of grazing based on satellite grazing posts around the villages. This system conserved the grassland by allowing for herds to be moved according to seasonal conditions and plant growth cycles. The colonial government disturbed this system by interfering with the free establishment of grazing posts and by creating an authority that had too little interest in controlling the use of grazing posts (Quinlan, 1995).

After Lesotho's independence the government went into partnership with development aid agencies. The first post-colonial initiative to address grassland degradation was in the early 1980's largely as a result of United States Agency for International Development support (Quinlan, 1995). The failure of this and other interventions to address grassland degradation has been attributed to the development/conservation experts' simplistic, linear explanation of complex ecological processes, that degradation is simply a result of overgrazing and 'destocking' the only solution. These experts have invariably also ignored the knowledge that the stock-owners constructed over more than 100 years of collective success in rearing a variety of livestock.

Quinlan (1995:492), refering to this local knowledge as a complex 'transhumance system', has illustrated how it is moulded by economic, biological and climatic factors. This local knowledge continues to be ignored by Basotho themselves, including curriculum developers, in a predominant reliance on imported knowledge systems from external 'experts' for development. Dominant imported knowledge systems tacitly defend the exploitation of local communities and the whole of the environment. It may be argued for example that the Lesotho Highlands Water Project is based on a body of imported scientific and technological knowledge which has been applied to the benefit of the Lesotho Highlands Development Authority, associated multinational corporations and some local individuals, and tacitly used to exploit the majority of communities and the land.

From a socially transformative perspective environmental issues are seen as "socially constructed and subject to reconstruction through historical and social processes" (Gough & Robottom, 1993:310). Through the lens of socially critical theory environmental issues are manifestations of repressive social practices that are generally perceived as legitimate. Most environmental problems are, as Robottom and Hart (1991:9) put it,

political (rather than natural) in character: The majority of environmental issues involve 'quality of life' or 'need concerns', and are settled through the processes of negotiation, manoeuvering, persuasion, the offer of inducements, the exertion of influence ...

Others may see issues differently. The point is that environmental problems are not objectively existing physical phenomena, but rather social constructions whose meaning and significance depend on the context and changeable human interests.

Political boundaries between countries are also socially constructed and 'objectified' in the language which distinguishes between people as 'foreigners', 'citizens' and 'permanent residents', and between some 'foreigners' as 'investors' and others as 'aliens'. This language goes with an imagery that barriers do exist between nations, a myth which is often made apparent by the occurrence of transboundary environmental problems between Lesotho and South Africa.

The socio-economic ills of Lesotho, for which South Africa is in part responsible, affecting both countries. For example, the large numbers of Lesotho migrants working in South African mines were legally prohibited to bring their families with them and lived in single sex hostels until recently (1996). This gave rise to numerous social problems, including the breakdown of many families for decades.

Socially transformative environmental literacy is about a critical awareness of the ways in which language shapes our understanding of issues, and about developing new labels and metaphors that will uncover hitherto hidden environmental problems and open up new grounds for solving the root causes of such problems.

An Associated Perspective on Sustainable Development and Local Knowledge

In Lesotho the school curriculum and teacher education programmes are silent about Basotho's local knowledge. This is a direct result of the impact of the British school curriculum and the missionaries' teachings. Gay et al. (1995:6) explain:

As part of the wider European missionary effort, the French Protestant missionaries believed that Christianity and the fruits of Western civilisation went hand-in-hand. Only in this way could the 'heathen and uncivilised' nations be uplifted to a higher standard. Teaching Basotho not to trust the ancestral spirits or local doctors, and that the initiation rites, marriage by cattle and a host of other practices were against the law of God, the missionaries were quiet but insistent revolutionaries.

In their limited and limiting view of what counts as acceptable knowledge, the missionaries were not

unique. Modern-day concepts such as sustainable development are often informed by similar authoritative perspectives. From the perspective of liberation theology, however, the environmentally literate would realise

> that society as well as reality is often seen in different ways by different people. They recognise that the dominant understanding of reality gives expression to the views of the dominant class (and nations of the North) and that this is not the only way of viewing reality. It is also not an objective (value-free) understanding of reality (Villa-Vicentio, 1994:189).

Based on this view the concept 'sustainable development' has to be examined also from perspectives other than those informed by externally imposed or dominant knowledge systems. It will embrace life support systems that evolve within and are adapted to people's own socio-historical contexts. The clarification of 'sustainable development' would therefore not attempt "to speak to all humanity across all time and cultural space, but to a particular group determinately situated at a reasonably specific time" (Nielsen, 1992:278).

Local knowledge is "held by local communities in different languages in diverse epistemological frameworks" (Shive et al., 1997:58). An example would be biodiversity-related local knowledge for healing or farming. The United Nation's (UN) Commission on Sustainable Development that monitors the follow-up of the decisions of the 1992 UNCED recorded in Agenda 21, observed the value of 'traditional knowledge' in the promotion of sustainable development (Connect, 1996). Zwahlen (1996) notes two factors that make locally-derived or indigenous knowledge and practices essential aspects of sustainable development. Firstly, they emerge from the cultural context of the people concerned and secondly, they evolve in close contact with specific environmental conditions.

An emphasis on local knowledge as dimension of environmental literacy does not constitute a reification of this knowledge or an argument that it is always appropriate in a particular form. One needs to recognise that "to ground knowledge in social practices is to ground it in contexts shot through with relations of power, which themselves may be highly conflicting" (Blake, 1996:62). This suggests that local knowledge forms, too, are not neutral and may

be riddled with competing political interests. Drawing on school-based case studies in Australia, Gough and Robottom referred to a dimension of this knowledge as 'working knowledge', describing it as "transitional rather than transmissional, generative/emergent rather than preordinate, opportunistic rather than systematic, and idiosyncratic rather than generalisable" (1993:309). Local knowledge itself needs to be seen as emergent and in transition.

In the light of the above "the idea of a 'universal' course content and the idea that textbooks are prime sources of worthwhile knowledge are inapplicable in a socially critical curriculum" (Gough & Robottom, 1993:309). In the next section we explore the kind of curriculum that would reflect and enable socially transformative environmental literacy.

The Curriculum

The role of the teacher

Didactically, if subjugated knowledge systems are to be opened up and utilised, the roles of educators and students need to be similar to those articulated in contextual theology as representing a "change from merchants who sell [and buy] pearls to hunters who search for treasures" (Kaufmann, 1994:5). Students and teachers would have to set aside the 'banking' system (Shor & Freire, 1987) within which they are perpetual recipients of imported discourses, and become hunters of the 'treasure' of continually evolving knowledge within their own society.

The recognition, articulation and reflexive utilisation of local knowledge can reciprocate power to people to manage their environment, for power and knowledge are intertwined (Foucault, 1977). Valuing one's communities' knowledge about one's environment is not enough, though. Teaching for environmental literacy should also involve 'decolonising' (Rodriguez, 1995) the minds of learners and teachers, so that they may view themselves as 'complete human beings' - batho ba feletseng - who have the power and potential to transform their environment. 'Decolonising' here means making explicit the values embedded in the transfer of knowledge developed in one context to another, which serves the interests of the suppliers at the expense of the recipients and their environment. Once initiated, this knowledge transfer is self-sustained by the recipients' dependence syndrome. The recipient perpetually feels psychologically powerless without externally supplied knowledge - a phe-

nomenon often observed in educational and development settings in southern Africa.

The teacher who teaches for socially critical environmental literacy is a 'political agent of social change' who perceives of the classroom as an 'active area of transformation' (Kanpol, 1996:111, 112). This could mean questioning the knowledge, skills, values and attitudes promoted by the dominant culture and nations, in terms of their impact on environment and sustainable living. Informed by critical theory the teacher cultivates 'consciousness' in the learners to critique dominant ideologies and social practices that have become widely acceptable or 'natural', but which promote exploitation of the local environment (Nielsen, 1992).

Liberation theology provides a complementary view, of the teacher as a 'prophet'. Drawing on the attributes of the great Jewish prophets who dismantled oppression and exploitation the teacher is described as one who

> is not only gut-wrechingly critical of social surroundings ... but also passes on a message of transformative hope, enlightenment, joy, love, mercy and forgiveness that is often missing in critical educational discourse (Kanpol, 1996:112).

A message of 'hope' is very necessary where there is despair and the conviction that the people of Lesotho lack the potential to develop alternative education systems that may eradicate poverty and promote sustainable development; 'joy' stems from a clear grasp of 'alternatives'; 'love', 'mercy' and 'forgiveness' replace 'hatred' and 'vengeance' towards those who are responsible for poverty, deriving from an understanding of the conditions that informed their actions. In this sense the teacher as a prophet teaches about, to use Kanpol's words, "what it is to be human in a dehumanising culture"(1996:112).

The educator's role in the classroom is to create a dialogue between the learners' own experience and the curriculum content. Teachers create spaces for their own voices, learners' voices and the voice of the content prescribed by the syllabus. Critical pedagogy is helpful for understanding the nature of these voices (Firth, 1996; Kanpol, 1996), their socio-historical make-up and the environment that shaped them. Kanpol comments,

> through understanding one's own voice and others' voice, teacher and students can begin to act as change agents to alter present oppres-

sive social and structural conditions that shape, constitute, and restrain different voices (1996:106).

The classroom thus becomes a 'terrain of struggle'(Kanpol, 1996:108). One dimension of the struggle is the teacher's work on the environmentally detrimental values developed through orthodox pedagogy. It has been argued that the market oriented values of excessive competition and individualism are opposed to values such as sharing, co-existence and communalism associated with sustainable living. The former values are congruent with an accelerated 'liberalisation of the economy' and 'free trade' principles enshrined in the globalising drive. The impact of globalisation on Lesotho and other countries in the South has been an accelerated erosion of sovereignty and intensified exploitation of natural resources (see Shiva et al., 1997).

A pedagogy that promotes social transformation and sustainable development would encourage students to voice their views and reflect with others on issues of emancipation, equity and social justice in their own environment (see Robottom & Hart, 1993:25). One useful teaching strategy involves participatory and emancipatory action-research processes (see McKernan, 1991) informed by critical theory. The participatory approach to research processes becomes essential when history shows that collective action is usually more productive than individual effort in political struggles (Robottom & Hart, 1993:25). The notion of participation is part of Basotho culture and reflected in a popular proverb *Lets' oele le beta poho.*

Participatory learning processes also helps to deal with the notion of an 'empowered educator' assuming that she can 'empower' the learners (see Janse van Rensburg, 1994:5 for a critique of this assumption). It is a process within which environmental educators exercise power to assist learners to exercise power (Firth, 1996). Participatory action research involving teachers and students assumes that knowledge is not static and that 'empowerment' is an ongoing process. Through the engagement with the recurring cycles of action and reflection, shifting understandings of environment and environmental issues may emerge.

Action research is also an opportunity for reflection-in-action within which environmental educators can monitor and evaluate their own practice reflexively (see Shon, 1987). In this sense, there will be no

'empowered educators' who hold an 'objective' understanding of environmental literacy in the study on which this paper is based. Rather, drawing on critical theory, the research team needs to be critical of their own understanding of environmental literacy and that held by others, as it emerges from a particular historical and social location. An understanding of environmental literacy represents a perspective from a particular point in the web of reality and is held as long as it seems appropriate for enabling sustainable living.

Disciplines

Based on a perspective of 'environment' as a web of interacting social concerns the transcendance of subject disciplinary boundaries is a perennial call in environmental education circles (EEPI, 1994). Disciplines are a product of the modernist thought within which the complex web of reality with multiple interacting (rather than simple, linear cause-and-effect) forces is simplified to such an extent that it fails to be reality-congruent. In Lesotho this practice has generated simplistic perceptions of environment, characterised by the reduction of environment to the biophysical component and taught as Ecology in the class context.

Lesotho's science curriculum developers have for many years attempted to promote interdisciplinarity, as noted in the goals of the secondary schools science curriculum, through the teaching of, initially, Integrated Science and, currently, Junior Science (Examination Council of Lesotho, 1983, 1995). In our experience teachers seldom achieve integration beyond a superficial linking of topics. This is not surprising, for the disciplines constitute a world view that is entrenched from the time individuals attend secondary school. In terms of constructivist theories worldviews are tenacious and not given up unless those who hold them recognise their limitations. Miller (1989) describes complex processes involved in the deconstruction or un-learning of worldviews. Within the prevailing disciplinary culture in Lesotho, teachers themselves are likely to perceive the integration of disciplines as complex, chaotic and less representative of reality.

The Textbook

School textbooks are traditionally de-contextualised authoritative voices leading the classroom discourse. Taking cues from an emerging approach to reading a biblical text within contextual theology (Cochrane,

1996; Institute for Contextual Theology, 1994; West, 1993) teachers for socially transformative literacy would 'contextualise' the textbook content. Cochrane (1996:4) explains that "contextualisation is really that encounter with the environment in which we operate - wrestling with it and taking it seriously."

Contextualisation can be seen as a form of critical theory, a

> historicised critical theory through which we can critique society and ideologies as we start from where we happen to be historically and culturally, from a particular kind of frustration or suffering experienced by human agents in their attempt to realise some historically specific project of the good life (Nielsen, 1992:278).

Within the classroom contextualisation might begin with the teacher and the students attempting to understand their own community and environment (their problems, traditions, norms, roles and values) in the light of the discipline-based textbooks, and further to understand the relevance of the text by examining the socio-historical context and values that produced its content. During this process the silences in the textbook should also be explored. These may include a silence on the political circumstances and ideologies that shaped the textbook content. These aspects of a textbook tend to be 'naturalised' and hidden by scientific rationality (Firth 1996), especially in the biophysical sciences.

This critical pedagogy for using a textbook could be extended by issue-based learning outside the classroom, to encourage learners' reflection on environmental issues in sustained and locally focussed processes of investigating real environmental issues with a view to

> uncover and make explicit the values and vested interests of the individuals and groups who adopt positions with respect to the issue(s) (Robottom & Hart, 1992:23-24).

Rodrigues (1995:41) argues that such critical consciousness "should guard the students and citizens against the discourses that defend exploitation of humans and the environment."

Within this perspective of critical thinking students who are passive in the classroom are not necessarily uncritical. People may be passive because they have developed a 'culture of silence' within authoritarian and oppressive contexts (Lather, 1991).

SOME IMPLICATIONS FOR FORMAL EDUCATION IN LESOTHO

We have tried to articulate a socially transformative environmental literacy by drawing on features of a number of theoretical frameworks that we perceive as socially transformative, and on Mokuku's experience in Lesotho. The purpose of our reflection has not been to provide a pre-ordinate meaning of environmental literacy which may be adopted by environmental educators, but to challenge other educators, including those participating in the research which stimulated the paper, to explore new ways of talking about, envisioning, acting and conceptualising education for sustainable development.

We conclude our reflections by referring to a few implications for environmental education in Lesotho as we see it.

As party to the UN community Lesotho is a signatory to international conventions, including Agenda 21. The recent environmental education rhetoric in the country can be seen as a response to an UNCED resolution that education is critical for promoting sustainable development and addressing environment and development issues. The general trend of environmental education initiatives within formal education in Lesotho seems to be the addition of topics within separate subjects. Environmental topics are considered as part of Ecology and the study of prevailing Environmental Issues. Another approach, which presently features only at a theoretical level, is the notion of environmental education as a new and separate subject to be added to the already content-laden curricula. These approaches reflect the modernist tendency to favour cumulative or incremental rather than transformative changes in curriculum (Doll, 1989). In view of the fact that environmental problems and issues are contextual and wane and wax with socio-economic change, this approach has limitations.

Contrarily, a post-modern approach to environmental education within school curricula would imply a change in the approach of teaching the subject (i.e. teaching the existing subjects with/from an environmental perspective), rather than the addition of more content. We have outlined some of those pedagogical changes above. For example, educators may explore a dialogue with those affected by environmental problems (including the students in the classroom) in order to reveal unexplored terrains of understandings of our environment (e.g. uncovering indigenous knowledge). Such a dialogue may emerge from socially critical action-research processes, within which students and teachers may critically reflect on the environment as they engage in a sharing relationship. From the perspective of contextual theology those who share move together into new terrains of understanding, through dialectical interaction.

Further, constructivist theories argue that learning involves transformative mental change or a reorganisation of mental structures (not simply accomodating more content). Transformative change, as Doll (1989:249) puts it, "is a change in view, in perspective, in methodology. It permanently alters one's relationship to nature, to life, to the environment, to learning." A process-based constructivist model of teaching, as opposed to instrumental models, may support such transformative learning.

By contrast, school curricula in Lesotho are informed by formal, Newtonian thought (Kincheloe & Steinberg, 1993; Doll, 1989) based on a cause-effect, hypothetico-deductive system of meaning. This dominant worldview favours a perception of reality, environment and change as simply ordered and uniform rather than complex and chaotic; harmonious rather than discordant; cumulative or incremental rather than transformative; and the achievement of efficiency through pre-set ends (objectives) rather than explored ends. These perspectives also shape imported teacher training and curriculum development models. Teacher training institutions emphasise mechanical approaches to curriculum development and teaching, exemplified by the formulation of objectives in line with pre-set ends, and valuation or closure to establish whether the ends have been achieved.

These models seem inappropriate for the development of socially transformative environmental literacy. It seems necessary to shift to a new paradigm within which the ends set before curriculum implementation (e.g. lesson objectives) are merely guidelines to be transformed in the process of implementation (i.e. teaching and learning) along with the students, the teachers and the course material, rather than fixed expectations. The traditional teaching methods for transmission of knowledge or production of predetermined behaviours may need to be superseded by a focus on the development of processes of learning. The emphasis on lesson closure (within which the presented content is usually repeated) may need to be superseded by strategies that encourage students to develop their own alternatives and insights in the light of the presented content.

To conclude, curriculum developers in Lesotho may seek answers to the intensifying and complex environmental degradation in this country in the emerging systems of meaning within post-modernist perspectives, contextual theology, emancipatory action research and critical theory. However, formal education is only part of a social system shaped by economic and political forces. A sustainable transformative change in the society's perspectives on the environment may only be possible through a link to a broader and deeper political transformation, through stimulating critical reflection by the larger society on the dominant ideologies
(Shor & Freire, 1987) and by engaging in "a long course of political change" (Nielson, 1992:282).

REFERENCES

Bacchus, K. 1990. Curriculum development and education in the developing countries. *Educational Review*, 42(3).

Blake, N. 1996. Between post-modernism and anti-modernism. The predicament of educational studies. *British Journal of Educational Studies*, 44(1), 42-65.

Bodner, G. 1986. Constructivism: A theory of knowledge. *Journal of Chemical Education*, 63(10).

Bohm, D. & Edward, M. 1991. Changing consciousness. Harper, San Francisco.

Bohm, D. & Peat, F. 1987. *Science, Order and Creativity*. Bantam Books, New York.

Chiras, D. 1992. Teaching critical thinking skills in the biology and environmental science classrooms. *American Biology Teacher*, 54(8), 464-468.

Cochrane, J. 1996. Perspectives on contextualisation of theological education. *Bulletin for Contextual Theology*, 3(3), 1-3.

Doll, W. 1989. Foundation for post-modern curriculum. *Journal of Curriculum Studies*, 21(3), 243-253.

EEPI. 1994. *Environmental Education Policy Initiative*. EEASA, Howick.

Institute of Education. 1975. *Proposal for Funding of the Environmental Studies Programme for the Lesotho Primary Schools*. Institute of Education (National University of Lesotho), Roma.

Examination Council of Lesotho. 1983. *Regulations and Syllabuses for the Junior Certificate Examination*. Ministry of Education, Maseru.

Firth, R. 1996. Knowledge and power: The illusion of emancipatory pedagogies within environmental education. *Southern African Journal of Environmental Education*, 16, 10-25.

Foucault, M. 1977. *Discipline and Punishment: The Birth of the Prison*. Allene Lane, London.

Freire, P. 1994. *Education for Critical Consciousness*. Continuum, New York.

Gay, J., Gill, D. & Hall, D. 1995. *Lesotho's Long Journey. Hard Choices at the Crossroads*. Sechaba Consultants, Maseru.

Gay, J., Hall, D. & Dedorath, G. 1990. *Poverty in Lesotho: A Mapping Exercise*. Maseru.

Gough, A. & Robottom, I. 1993. Towards a socially critical environmental education. Water quality studies in a coastal school. *Journal of Curriculum Studies*, 25(4), 301-316.

Gysae-Edkins, M. (Ed.) 1994. Report on the Environmental Education Workshop. Lesotho Association of Non-formal Education, Morija.

Habermas, J. 1968. *Knowledge and Human Interests*. Beacon, Boston, M.A.

Institute for Contextual Theology. 1994. Updating contextual theology. *Challenge*, 20, 18.

IUCN. 1994. *State of the Environment in Southern Africa*. SADC, Maseru.

Janse van Rensburg, E. 1995. *Environmental education and research in southern Africa. A Landscape of Shifting Priorities*. Doctoral Thesis, Department of Education. Rhodes University, Grahamstown.

Kanpol, B. 1996. Critical pedagogy and liberation theology: Borders for a transformative agenda. *Educational Theory*, 46(1), 105-117

Kaufmann, L. 1994. Hunting for the treasure. *Challenge: Church and People*, 24, 5.

Khalikane, M. 1988. *Environmental Profile for Lesotho*. Agricultural Management Consultants, Maseru.

Kincheloe, J. & Steinberg, S. 1993. A tentative description of post-formalist thinking: The critical confrontation with cognitive theory. *Harvard Educational Review*, 63(3), 296-320.

Kuhn, T. 1970. *The Structure of Scientific Revolutions* (2nd ed.). University of Chicago, Chicago.

Lather, P. 1986. Research as praxis. *Harvard Educational Review*, 56(3), 257-277.

Lather, P. 1991. *Feminist Research in Education: Within/Against*. Deakin University Press, Victoria.

Lesotho. 1994. *Lesotho Agenda 21*. Government Printer, Maseru.

Littledyke, M. 1996. Science education for environmental awareness in a post-modern world. *Environmental Education Research*, 2(2), 197-214.

Mathot, G. 1996. *Seliba sa Boithuto*: An attempt to give the responsibility for learning back to the learner. *Work for Justice*, (48), 9-10.

Matlosa, K. 1997. The 1993 elections and the nature of the BCP victory. *African Journal of Political Science*, 2(1), 140-151.

McKernan, J. 1991. *Curriculum Action Research: A Handbook of Methods and Resources for the Reflective Practitioner*. Kogan Page, London.

Miller, R. 1989. Conceptual issues in theorising about cognition. *South African Journal of Higher Education*, 3(1), 154-159.

Mokuku, T. 1995. Education for environmental literacy: Participatory action-research in the science curriculum in Lesotho. PhD research proposal. Department of Education, Rhodes University, Grahamstown.

Nielsen, K. 1992. On the status of critical theory. *Interchange*, 23(3), 265-284.

Oja, S. & Smulyan, L. 1989. *Collaborative Action Research: A Developmental Approach*. Falmer, London.

Quinlan, T. 1995. Grassland degradation and livestock rearing in Lesotho. *Journal of Southern African Studies*, 21(3), 491-507.

Robottom, I & Hart, P. 1991. Behaviourist environmental education research: Environmentalism and individualism. Manuscript submitted to the *Journal of Environmental Education*, December, 1991.

Robottom, I. & Hart, P. 1993. *Research in Environmental Education. Engaging the Debate*. Deakin University, Victoria.

Rodriguez, F. 1995. Decolonising the Filipino mind: Freire's critical pedagogy and environmental education. Paper for Presentation at the Second ASEAN Conference on Environmental Education, University of the Philippines, Los Banos.

Shiva, V., Jafri, H., Bedi, G. & Holla-Bhar, R. 1997. *The Enclosure and Recovery of the Commons*. Research Foundation for Science, Technology and Ecology, New Delhi.

Shon, D. 1987. *Educating the Reflective Practitioner*. Jossey Bass, Idaho.

Shor, I. & Freire, P. 1987. *A Pedagogy for Liberation: Dialogues on Transforming Education*. Bergin & Garvey, New York.

Tilhun, S. & Edwards, S. (Eds). 1996. *The Movement for Collective Intellectual Rights*. Gaia Foundation, London.

UNCED. 1992. *Agenda 21 (Chapter 36)*. United Nations Conference on Environment and Development, Rio de Janeiro.

UNESCO-UNEP. 1978. Tbilisi principles of environmental education. *Connect*, 3(1), 1-8.

Villa-Vicencio, C. 1994. Doing theology in context. South African perspective. In C. Villa-Vicencio (Ed.), *Liberation Theology*. David Philip, Cape Town.

Weisfelder, R. 1997. Why Lesotho needs a disctinctive diplomatic stategy. *African Insight*, 27(1), 32-43.

West, G. 1993. *Contextual Bible Study*. Cluster, Pietermaritzburg.

Zohar, A. & Tamire 1993. Incorporating critical thinking into a regular high school biology curriculum. *School Science Review*, 93(3), 136-140.

Zwahlen, R. 1996. Traditional methods: A guarantee for sustainability? *Indigenous Knowledge and Development Monitor*, 4(3), 18-20.