

Towards a “language of probability” for environmental education in South Africa

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In the current phase of our history, crises abound in many spheres of life — political, ecological, economic, personal, and so on. When crises manifest themselves in society we often turn to education as a panacea for addressing these societal ills as if ‘education’ might not be part of the problem. All education is ideological in the sense that an educational activity can not be neutral. Educational ideologies have shaped different approaches to environmental education, and have influenced its implementation in formal education. Through a critical examination of educational ideologies that underpin environmental education, I explore possibilities and constraints (poverty) of education in addressing environmental problems. I argue that in order for environmental education to avoid the status of a peripheral pedagogy, it needs to be liberated from the ideological constraints of how it is often defined. Also, I point out that a *language of probability* is needed for its systemic implementation. I contend that in South Africa OBE might be a vehicle for the systemic implementation of environmental education.

Introduction

The greatest ‘discoveries’ of the twentieth century lie not in the realms of science, medicine and technology but in the emerging awareness that we inhabit a planet with finite resources. Since the sixties we have witnessed a growing awareness of the effects of human exploitation of environments. Early responses to environmental problems came from scientists such as Rachel Carson (1962), concerned with environmental problems associated with the use of pesticides, Ehrlich and Ehrlich (1970), concerned with issues related to resources amongst others and Meadows, Meadows, Randers & Behrens (1974), concerned with human population problems.

The growing consciousness of human exploitation of environments elicited several responses. In the last three decades we have witnessed a plethora of (inter)governmental conventions hosted, a myriad of books published, extensive media coverage, and countless speeches delivered concerning environmental issues and how they might be addressed. Environmental education developed as one such response and the 1970s in particular, have seen a burgeoning of environmental education programmes offered in schools, universities and the non-formal education sector. In the main, this involved sharp increases in the number of ecology-related courses offered at all levels of formal education. In South Africa ecology was first introduced in schools in the 1970s as part of the grade twelve biology syllabus. Today this approach to environmental education is still dominant in many South African schools.

It is axiomatic that currently, more environmental education programmes are offered in schools, universities, and the non-formal sector than at any other time in human history. However, despite the increased number of environmental education programmes offered to learners, the condition of the environment continues to be subjected to degradation. Sterling (1993:70) points out that the world lost nearly 200 million hectares of tree cover, deserts expanded by 120 million hectares, thousands of plant and animal species became extinct, and an estimated 480 billion tons of topsoil were lost in the period from 1970 to 1990. This trend has continued in the 1990s as evidenced by a recent United Nations report, GEO-2000, which according to Motta (1999), delivered a devastating assessment of the state of our planet. In the light of the above the question arises, whether environmental education is efficacious? This question is pertinent as Orr (1992:149) so cogently reminds us that:

“For those calling [ourselves] environmental educators, it is sobering to note that the only people who have lived sustainably in the Amazon rain forests, the desert Southwest, or anywhere else on earth could not read (which is not to say that they were uneducated). And those in the United States living closest to the ideal of sustainability, the Amish for example, do not make a fetish of education, seeing it as another source of deadly pride. On the other hand, those whose decisions are wreaking havoc on the

planet are not infrequently well educated, armed with B.A.’s, B.S.’s, LL.B’s, M.B.A’s, and Ph.D’s.”

In view of this, in this article, I critically examine education ideologies that have shaped approaches to environmental education and argue for liberating environmental education from these ideological constraints. I argue for developing a *language of probability* for environmental education that will enable systemic implementation within a discourse of outcomes-based education. Before doing so, I briefly look at what environmental education is about.

What is environmental education?

Environmental education is a polysemous term. It is a complex area of human understanding that cannot be reduced to a simple, fixed, unambiguous definition. As Gough (2000:2) writes, “we can no more provide a precise three-line definition of [environmental education] than of everyday words like ‘love’ or ‘justice’ — these are terms that will always be the subject of exploration, speculation and debate. Of course, it could be argued that there is also a danger that the term environmental education could be rendered meaningless if it becomes too fuzzy to convey anything useful. I therefore briefly describe some changing trends and conceptions of environmental education over time so as to provide a meaningful perspective.

In recent decades we have seen a proliferation of knowledge(s) of environments, their related problems, issues and risks. Conceptions of environmental education (education’s response to environmental issues and risks) have changed since the term was first described by Stapp and his colleagues at the University of Michigan in the late 1960s (see Gough, 1997:6). We have witnessed changes to the way environmental education has been defined, as well as changes to key principles of environmental education. For instance, the Tbilisi principles formulated in 1977 (UNESCO-UNEP, 1978) tended to take a value-neutral stance on environmental issues whereas the 1992 UNCED NGO principles (UNESCO-UNEP, 1993) see environmental education as more value-based and as an act of social transformation (Lotz, 1998).

Three broad approaches to environmental education, education *about*, *in/through* and *for* the environment, have been widely accepted since Lucas first coined it in his 1972 doctoral thesis. Education *about* the environment emphasises knowledge about natural systems and processes. Education *in/through* the environment emphasises learners’ experience in the environment as a means of developing learner competencies and values clarification capacities. According to Fien (1993) education *for* the environment has an overtly critical agenda of values education, social change and transformation through action based exploration and involvement in resolving environmental problems. Education *for* the environment has served as the basis for more recent discourses that have developed within environmental education such as *education for sustainable development* (ESD), *education for a*

sustainable future (ESF) and *education for sustainability* (EFS) (see Sauvè, 1999). Discourses on education for the environment have been fiercely contested recently, but it is not the time here for a detailed discussion (see Jickling, 1992; Jickling & Spork, 1998; Dillion, 1999; Schreuder, Le Grange & Reddy, 1999 and Fien, 2000 for more detail). Pertinent here, however, is that I use the three approaches to environmental education for my later deliberations on environmental education and educational ideologies. But, first I turn now to a brief discussion on environmental education in South Africa.

Environmental education in South Africa

Irwin (1990:5) who some regard as one of the 'founders' of environmental education in South Africa states that the environmental education movement was pioneered by non-governmental conservation agencies and state conservation agencies. This interest in environmental education (EE) started as early as the 1960s, but until 1989 there had been no nationwide, state driven attempt to include environmental education into the formal curricula. The first attempt to include EE in the formal curriculum was the 1989 White Paper on Environmental Education (Mosidi, 1997). According to Mosidi (1997) the White Paper's inclusion of the guidelines adopted at the international conferences held in Belgrade (1975) and Tbilisi (1977) was an encouraging shift from narrow interpretations of environmental education held up to this point. However, the White paper selectively incorporated Tbilisi principles and Clacherty (1994:56) points out that the White Paper was never enacted in parliament, was not broadly inclusive, resulting in little implementation in formal education

In 1992 the Environmental Education Policy Initiative (EEPI) was started as a more inclusive process of gathering and developing environmental education policy options for formal education in South Africa. A significant outcome of this process was the inclusion of environmental education in the most recent Government White Paper (March 1995) on education and training, as one of the key principles for Education and Training policy in South Africa in the 21st century. The principle states:

Environmental education, involving an inter-disciplinary, integrated and active approach to learning, must be a vital element of all levels and programmes of the education and training system, in order to create environmentally literate and active citizens and ensure that all South Africans, present and future, enjoy a decent quality of life through the sustainable use of resources (Principle No. 20:22, RSA, 1995).

South Africa's first democratic election in 1994 necessitated imperatives for change and redress. In the period immediately following the elections we witnessed the emergence of a plethora of new policies, including policies on education and the environment. The right of every citizen to a healthy environment is embedded in the bill of rights of the new South African constitution. Key policy documents emphasise the importance of using the country's natural resources in a sustainable manner, as well as the need for sustainable development (ANC, 1994; RSA, 1998).

Flowing out of the 1995 White Paper on Education and Training were policy processes that had broader implications for the restructuring of the education and training system and school reorganisation. Foremost among these were the establishing of a National Qualifications Framework (NQF) and a new OBE curriculum. In March 1997 the Education Ministry under the title Curriculum 2005 launched the new curriculum. This curriculum is envisaged to replace content-based education with outcomes-based education and teacher-centred pedagogies with more learner-centred pedagogies. Another change is the replacement of the 42 school subjects offered to learners in South African schools by eight areas of learning. The learning areas combine the old subjects, in a sense, to promote a more holistic approach. Each learning area has curriculum statements which provide a focus for the development of learning activities. These learning activities should have a local and contextual focus, and teachers are expected to play a much more prominent role in developing learning programmes (co-

herent collection of learning activities). In addition, all programmes of learning are to be organised by cross-curricular themes (phase organisers) such as environment, entrepreneurship, personal development and so on.

Environmental educators in South Africa viewed the phase organiser environment as a useful 'vehicle' for including environmental education activities in all programmes for general education and training. However, the Curriculum 2005 Review Task Team, appointed by the Minister of Education Kader Asmal in 2000, recommended that phase organisers be removed from Curriculum 2005. The National Education Ministry has accepted this recommendation. Despite this, in his media response to the review committee's report, Minister Asmal stated that environmental education would form an important part of a revised curriculum. The appointment of an advisor on environmental education to the Minister might further be an indication that the education ministry has recognised the importance of environmental education. However, although these developments and policy processes provide enabling frameworks for the implementation of environmental education, critical analyses of orientations to education might shed light on the possibilities and constraints of implementing environmental education in South Africa. It is with this in mind, that I turn now to a brief discussion on educational ideologies and how they have influenced approaches to environmental education.

Educational ideologies and environmental education

Like many other concepts ideology has multiple meanings depending on the context in which it is used. Fien (1993:16) asserts that ideology can be understood in two broad, but fundamentally different ways. Firstly, ideology can be understood as a world view or system of concepts, beliefs and values. As Lotz *et al.* (1998:6) states:

"Ideology is a value or belief system which is accepted as fact or truth by some group. It provides the believer with a picture of the world as it should be. It often simplifies the complexities of the world into something simple and understandable."

Secondly, ideology also has a pejorative or critical meaning. This view of ideology sees it functioning as a system of beliefs which legitimates unequal relations of power and wealth in society. Fien (1993:17) has argued that with this meaning, ideology becomes a distorted view of reality for subordinate groups who uncritically embrace the positive world view of dominant social groups. In this article I concern myself with both views of ideology.

Over the years there have been several attempts to define and categorise educational ideologies more specifically. Several categories have been constructed from bipolar schemes to more complex categorisations based on either theoretical or empirical work. It is not the place here for a detailed discussion on the different categorisations. Suffice it to say that for the purpose of this article I shall use the categorisation of Kemmis, Cole and Suggett's (1983), which encompasses three orientations to education, namely, the *vocational/neo-classical*, the *liberal/progressive* and the *socially critical orientation*. The three categories of Kemmis, Cole and Suggett (1983) are based on Habermas's (1972) knowledge constitutive interests. Habermas (1972) has argued that human beings have three distinct categories of needs and interests which he referred to as the *technical interest*, the *practical interest* and the *emancipatory interest*. The technical interest involves mastery and control over the physical world. This, Fien (1993: 19) argues gives rise to the need for instrumental knowledge (and therefore education) that "can satisfy physical and economic needs and allow one to fit into the present world as it is presently constructed". Habermas's technical interest underlies the vocational/neo-classical interest.

Kemmis, Cole and Suggett capture the main features of the vocational/neo-classical orientation in education as follows:

"... education is understood as a preparation for work ... as hierarchically-ordered [in which] the best endowed in ability and background will in any case find their way to the most rewarding positions ... [reflecting] the principles of the wider society; at its

most active, it recognises endowment early, selects appropriately, and prepares students efficiently to participate effectively in the society which awaits them beyond school” (Kemmis, Cole & Suggett, 1983).

The liberal/progressive orientation, associated with Habermas's (1972) practical interest, sees education as preparation for life rather work. The *practical interest* concerns rational modes of reasoning of individual and on understanding these modes of reasoning. It seeks to help learners fulfil a wide range of life roles through a broad general education based as much upon the humanities and liberal arts as upon science and technology. The orientation seeks the development and improvement of society through the education of autonomous individuals in whom schools have developed ‘a sense of the good, true and beautiful’ (Kemmis, Cole & Suggett, 1983).

According to the socially critical orientation, associated with Habermas's (1972) emancipatory interest, holds that education should play the role of engaging society and social structures immediately, not merely prepare students for later participation. The emancipatory interest involves the unmasking of ideologies that maintain the status quo by denying individuals and groups access to knowledge or awareness about the material conditions that oppress or restrict them. According to this position, education should address social issues and learners should gain experience in working on them. This would include experience in critical reflection, social negotiation and the organisation of action. Education should develop in learners the power of constructive critical thinking, not just in individual projects but also in group processes. Education should involve critically reflecting on what is worth knowing and not serve to maintain the *status quo* or what history has thrown up as worth knowing.

The Kemmis, Cole and Suggett (1983) typology is useful in understanding the three broad approaches to environmental education that I discussed earlier. Education *about* the environment emphasises teaching facts, concepts and generalisations about environmental problems, processes and problems. This approach is derived from both the vocational/neo-classical and liberal/progressive. Fien (1993:40) argues that the combination of these ideologies leads to education being viewed as a neutral, instrumental process. This perspective, in turn, leads to the belief that by increasing the curriculum content of, for example, environmental studies courses would result in an improved understanding of environmental problems and therefore to new forms of environmental management and improvement. This approach has dominated environmental education programmes at all levels of education in South Africa

Education in the environment involves using the environment as a medium for education. Learners are introduced into natural environments, which is viewed as the rationale and vehicle for their development. This approach is informed by the liberal-progressive educational ideology and emphasises the development of personal values, shaped by the laws of ecology. Arguing from a socially critical perspective, Huckle (1986:13) asserts that education in the environment with its ideas of natural and ecological determinism was at ‘best romantic and at worst positively reactionary’ for it fails to take account of the material base of society. His point being, that natural laws cannot be used to shape either society or education.

Education *for* the environment is underpinned by the socially critical orientation to education. Fien (1993:43) states that the objectives of critical education for the environment include, ‘the development of moral and political awareness as well as the knowledge, commitment and skills to analyse issues and participate in an informed and democratic way in environmental decision making and problem solving’. Pedagogically, this approach normally begins with a local environmental issue, which provide learners with the knowledge and skills to actively participate in seeking solutions to such problems. Education *for* the environment has, however, been variously critiqued for its instrumentalist approach (see Jickling, 1992; Jickling & Spork, 1998), and for its anthropocentric nature (see Gough, 1997; Schreuder, Le Grange & Reddy, 1999).

Despite the different ways in which environmental education has been defined, the condition of the environment continues to be subject to degradation. A great deal of debate has occurred and theories generated on environmental education within the academe, but little of this has been realised within formal education. I believe that in order for us to realise some of these theories we need *languages of probability*, to *engage in the politics of translation and negotiation* and find an acceptable *vehicle for systemic implementation*. In this regard, I find Deever's (1996) work on the failure of radical curriculum theory to achieve its ends, particularly useful.

Toward a language of probability for environmental education

Radical curriculum theory is a field of study rich with diversity of thought (Deever, 1996:172). It includes, among other things, revisionist education history, the ‘new sociology’ of education, reconceptualist curriculum theory, cultural studies, feminist scholarship, critical theory, and various forms of postmodern and post-structuralist analysis (Stanley cited in Deever, 1996:172). Deever (1996:173) points out that while radical curriculum theory is firmly ensconced in academe, it has yet to make any significant impact in the public schools of the USA. He argues that it still resides in the *world of the not yet*. Deever (1996) believes that there are three factors that prohibit its full entry into the mainstream of school reform:

- There is an absence of a language of probability
- There is an ongoing refusal to engage in the politics of translation and negotiation.
- There exists no acceptable vehicle for systemic implementation.

A language of probability

In a step from the *languages of critique*, *languages of possibility* emerged within the radical curriculum tradition. These languages concerned a continual focus on resistance, and the assertion that student and teacher generated meanings can be used reflectively to uncover and transform the hegemonic ideologies bounding in the denotation of social life. (Deever, 1996). In other words a *language of possibility* will enable teachers ‘to understand both the limits and the enabling possibilities that characterise schools’ (Giroux, 1988:2). Like the *languages of critique*, *languages of possibility* are sophisticated and powerful, indeed, but as yet unrealised. Deever (1996:175) argues that if the potential of radical theory is to be fulfilled, a third language is needed which he calls a *language of probability*. He states that appropriating a language of probability involves accepting that certain organisational patterns and practices will not likely change soon. Therefore it is imperative that efforts in systemic curriculum reform recognise and work with/through/around these realities.

The politics of translation and action

This concerns working with/in the bureaucratic structures that control both the resources and the public symbols of accreditation and external validation (Deever, 1996:177). It involves gaining access to interior structures and then working to redefine them. In the short-term it may mean compromising one original position in the short-term and bringing concepts back to a position closer to the original intent. Deever (1996:179) states that when we treat compromise and translation as evils to be avoided, we position ourselves, ‘in the hopeless spot outside the area of active conflict. Concerning radical curriculum theory he aptly states:

“We know how the game should be played, but we refuse to travel to the park where it is happening, we demand that both the game and the crowd come to us. This has not occurred, yet, and I think it safe to say it probably will not.”

A vehicle for systemic implementation

With reference to radical theory Deever (1996:179) argues that we need to construct or appropriate a vehicle (or vehicles) for its systemic application in schools. He argues that many radical theorists have

failed to advance the discussions of curriculum beyond critiques of the ideological assumptions informing existing curricular models. He presents an argument that OBE may be a vehicle that can be appropriated to achieve radical aims. He argues that many of the critiques leveled against OBE have approached it as a 'monolithic entity impervious to penetration and change' and in so doing have missed seeing opportunities for radical appropriation. He argues that the flexibility of the OBE model especially the statement of outcomes provide an entry point for concretizing the purposes of the radical project. Deever (1996:179) points out that the OBE model may offer avenues for tactical intervention into the schooling process that have eluded the radical left for decades. In the next part of this article I argue that OBE might be an appropriate vehicle for environmental education in South Africa.

Few would disagree that our schools need to be transformed by eradicating legacies of apartheid and replacing them with the qualities of democracy, equality, justice and peace. Given existing realities in South African schools this can not happen overnight and indeed will be a long-term process. The sooner we start, however, the sooner our goals, including effective implementation of environmental education, might be released. What we will need to do is move beyond the *languages of critique* prevalent in the South African curriculum reform debate. Furthermore, we need to recognise the utopia of *languages of possibility* and instead seriously consider *languages of probability* for curriculum reform in South Africa. As environmental educators we need to recognise that some aspects of schools and other formal institutions are not going to change soon. A first step is to accept this and to work with, through and around these realities. OBE as a curriculum model is likely to remain with us for a long time to come. Critiquing OBE from university armchairs may be analytic niceties, which academics find invigorating but they are not adequate for the challenges and choices South African teachers are faced with. Beyer and Liston (1992) have argued that teachers are always and necessarily moral actors, at whatever level or learning areas they claim competence. With respect to OBE, South African teachers are faced with difficult choices about what actions need to be taken. The actions they take may have profound and long-lasting consequences. As environmental educationists who work closely with schools we need to have an appreciation for the difficult choices teachers have to make, for where they are at, to be proactive in working in partnership with addressing local environmental issues. In South Africa currently the space exists for softening the boundaries between institutions. Various possibilities exist for partnerships between universities and schools, between universities and state departments and between universities and non-governmental organisations. I have argued elsewhere that partnerships between universities and schools, through initiatives such as collaborative action research, can assist in transforming environmental education practices in schools and re-defining the role of academics in contemporary South African society (Schreuder & Le Grange, 1998).

Recognising that certain organisational patterns and micro-level conditions do not change overnight should go hand in hand with recognising the importance of engaging in the politics of translation and negotiation. A new political dispensation in South Africa and the proactive steps taken by members of civil society involved in environmental education, are positive developments in this regard. The Environmental Education Curriculum Initiative (EECI) initiated in 1996 as a state/civil society partnership in one such development. Since its inception it has played a role in influencing the inclusion of environmental concerns in Curriculum 2005. This work has been extended and currently members of civil society are working in partnership with the National Education Ministry on a National Environmental Education Programme (NEEP) aimed at supporting the implementation of environmental education within the new curriculum framework (Curriculum 2005). NEEP is funded by the Danish Government, which extends the partnership beyond South African borders. These efforts need to be lauded and are crucial if environmental education is to avoid becoming a peripheral pedagogy.

OBE has been variously critiqued by among others, McKernan (1993), Soudien and Baxen (1997) and Jansen (1998, 1999). Also, Le Grange and Reddy (1997) have argued that OBE might be a limited vehicle for environmental education. Some of the critiques levelled against OBE is its instrumentalist epistemology, its behaviourist origins, its complex language, its globalisation agendas and so on. I accept that an OBE curriculum framework (in this case Curriculum 2005), like all curriculum models, has pitfalls. Furthermore, I accept that OBE is not a neutral construct free from historical legacies, or from state or globalisation agendas. However, at the same time OBE is not a monolithic, immutable construct as many critics of the movement imply. Also no reform programme be it policy or practice, is written on a clean slate (Pendlebury 1998). The South African OBE model provides spaces for environmental education which did not exist previously. The outcomes are stated broadly enough to avoid behaviourist pedagogical practices. OBE also provides pedagogical spaces for transformative classroom practices that might even involve critiquing the outcomes themselves. I contend that as environmental educators we need to view OBE as vehicle for systemic implementation and explore the spaces it provides for the implementation of environmental education in schools, universities and so on.

Concluding comments

The condition of the environment (human and non-human) is increasingly subjected to degradation. As a consequence, the sustainability of life on our planet is under threat. The reasons for human exploitation of the environment are manifold and complex. However, it is only the actions of human beings that can ensure that all future generations (of all life forms) derive benefit from our environment in ways we do today. Education can and should play a role in bringing these realities to learners who will become our future scientists, politicians, businessmen, lawyers, teachers, engineers and so on. More importantly, education can contribute in learners to take action towards environmental improvement.

Often, however, our educational theories, policies and practices as well as the way we organise our schools militate against enabling environmental educational processes in school programmes. Curriculum 2005 provides space and OBE provides opportunities for enabling environmental education processes in school programmes. It is important that we see these spaces and proactively introduce environmental education processes into educational programmes. We do not have the luxury of waiting to see all conditions in schools changing first before we can introduce environmental education into our programmes. 'There are needs. The time is right. The potential exist. If not now, when? If not now, why?' (Deever, 1996).

On a national level we have witnessed proactive steps (for example, EEPI, EECI, NEEP processes) taken by civil society to engage collaboratively with government in policy making processes aimed at providing enabling frameworks for the implementation of environmental education in schools — *the politics of negotiation and translation*. At a local level, environmental educators are exploring opportunities that OBE provides for facilitating environmental education processes at different levels of school learning — *using OBE as a vehicle for tactical implementation of environmental education*. Evidence of proactive steps taken at the micro-level of pedagogical engagement has been reported in several issues of the professional journal, *Enviroteach*. For example, the Learning for Sustainability Project in Gauteng and Mpumalanga (Du Toit & Olivier, 1997), Using School Grounds for Environmental Education (Le Roux, Lotz, Marti & Clacherty, 1997), Indigenous Knowledge within Environmental Processes (Masuka-van-Damme, 1997), Water and the Environment (Van der Watt, 1999), and so on. The examples provide evidence of an emerging *language of probability* in South African environmental education — serving a basis on which to build a critical consciousness about, in and for the environment among all South African learners.

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