

# Matching the Purposes of Environmental Education with Consistent Approaches to Research and Professional Development

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## Introduction

The aim of this paper is to address the issue of the coherence of three dimensions of environmental education activities - its substantive purposes; the research informing its policy, organisation and practices; and the professional development processes supporting its practitioners. It will be argued (i) that the *purposes* of environmental education are socially transformative, (ii) that the dominant approach to *research* in the field is behaviourist and deterministic, and (iii) that within a context of socially transformative environmental education, the role that the dominant behaviourist approach to research plays in *professional development* needs to be critically examined. The paper outlines a current international project in environmental education which includes in its aims an exploration of the relationships among environmental education purposes, research and professional development.

## The purposes of environmental education: a socially transformative aspiration

In a sense, the International Environmental Education Program launched by the United Nations Educational Scientific and Cultural Organization (UNESCO) in 1975 in co-operation with the United Nations Environmental Program (UNEP) laid the basis for modern environmental education. The literature of the UNESCO-UNEP Program contains a number of statements which reflect some of the more political concerns of the day and which prefigured the more politicised forms of environmental education in the 1990s.

For example, the Intergovernmental Conference on Environmental Education at Tbilisi, USSR in 1977 recommended that

Environmental education should not confine itself to disseminating new knowledge but should help the public question its misconceptions concerning the various problems of the environment and the value systems of which these ideas are a part

All decisions regarding the development of society and the improvement of the lot of individuals are based on considerations, usually implicit, concerning what is useful, good, beautiful and so on. The educated individual should be in a position to ask such

questions as : Who took this decision? According to what criteria? With what immediate ends in mind? Have the long-term consequences been calculated? In short, he [or she] must know what choices have been made and what value system determined them (UNESCO, 1980, pp. 26-27).

In those formative years of the field, environmental education was perceived as needing to exceed the exploration of the 'realities' that are constructed by particular individuals and groups at particular times to look also at questions about *how* and *why* reality came to be constructed in these particular ways. It was recognised that *environmental decision-making* implicated self-interests of various kinds; the 'politics of environment' was accompanied by calls for a critical, politicised environmental education (see Huckle, 1991; Robottom, 1987).

Adriano Buzzati-Traverso, who was Senior Scientific Advisor to UNEP and a key figure in the UNESCO program in the mid-1970's, recognised that *educational decision-making* associated with the environment implicates self-interests:

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

In other terms, behind any educational process lies a philosophy, a moral philosophy, for the people who exert power and are in charge of educational institutions share certain values, which they want to disseminate in order to ensure the prolongation, if not the indefinite survival, of the system they are devoted to (Buzzati-Traverso, 1977, p.14).

In environmental education, when we are focussing on controversial environmental issues like the logging of forests, the misuse of dangerous chemicals, and the squandering of energy, we are aware that various self-interests 'contest the ground'; we are prepared to become quite angry when we believe that some agencies are exploiting the environment unnecessarily. The value of Buzzati-Traverso's comments in an environmental education context is that they remind us that the *educational* part of the environmental education equation is also ideological -- that individual, group and corporate self-interests

are at work in the very *educational processes* by which environmental issues are studied. It is perhaps this doubly critical perspective (one which problematises environmental and educational activities) which distinguishes environmental education from, say, environmental science; environmental education is necessarily an educational field of study.

A philosophy similar to Buzzati-Traverso's is discernible in other UNESCO documents from that period:

The problems of the environment are indeed complex ones. They involve numerous parameters and interrelations. Lacking the necessary knowledge and approaches, individuals admit defeat and hand the problems over to the specialists. It is in terms such as these that recourse to technocracy is frequently justified. The result is the abandonment of any attempt to involve ordinary people, who come to be regarded as mere operatives or consumers (UNESCO, 1980, p. 26).

This statement is significant because it warns us that 'recourse to technocracy' in environmental education can result in a division of labor that disenfranchises 'ordinary people' and promotes passive consumerism of information about the environment -- passive consumerism that leaves unscrutinised the sorts of self-interests that Buzzati-Traverso warns us about. I will argue in the next section of this paper that 'recourse to technology' is especially evident in the role that research tends to play in professional development in environmental education.

In Australia more than a decade after these international-level developments, a number of state-level policies in environmental education are emerging, some of which have retained a critical perspective. Two of the most recent policy-like documents in Victorian environmental education that to some extent retain such a perspective are the Victorian Ministry of Education's *Environmental Education Policy* (Ministry of Education, 1990) and the Victorian Environmental Education Council's discussion paper "Educating for our Environment: Towards an Environmental Education Strategy for Victoria" (VEEC, 1991). The *Environmental Education Policy* presents a view of environmental education in support of curriculum work that is collaborative, critical and action-oriented:

There is a variety of curriculum approaches to environmental education across the State. These have the following characteristics:

- They are based on real problems.
- They clarify values.
- They make use of both ecological and interdisciplinary skills and concepts.
- They are socially critical.
- They are action oriented.
- They encourage the development of a sustainable development.
- They involve students working together in groups (Ministry of

Education, 1990, p. 11).

The VEEC Discussion Paper encourages ideology critique and social change as important elements of Victorian environmental education:

in the context of human welfare and the environment, if we fail to address social justice issues, we unwittingly preserve the structures and ideologies that are an underlying factor in the current environmental crisis. If we want a changed relationship with nature, we need changed social relations in areas such as the economic and sexual divisions which currently exist (VEEC, 1991, p.11).

These recent Victorian policies echo some of the sentiments and warnings proffered in the early UNESCO literature.

To summarise, I believe there are three messages that can be discerned in the early literature of environmental education, that to some extent are echoed in the most recent environmental education policy statements in Victoria, and that need to be taken into account in research seeking to be ideologically consistent with the socially transformative character of environmental education:

1. environmental education research needs to recognise that just as environmental issues serve certain self-interests, so educational processes (including research itself) serve certain self-interests.
2. environmental education research needs to adopt a research perspective in relation to its own role in promoting divisions of labour and passive consumerism in both environmental problem solving (for example, by students) and educational problem-solving (for example, by teachers). Environmental education research needs to be critical and participatory, and sensitive to the self-interests that shape environmental and educational activities (including professional development) in environmental education work.
3. environmental education needs to work toward transforming the social relations in terms of which we relate to the environment in certain ways.

Put another way, there is an irony in modern environmental education: despite the fact that there is an appreciable and increasing public consciousness about and participation in the business of critiquing *environmental* actions in terms of their ideologies, and in spite of the warnings of eminent early environmental educators like Buzzati-Traverso, modern participation in the business of critiquing *environmental educational* actions in terms of their ideologies. Part of the problem is the role that research plays in the standard professional development processes in modern environmental education.

## **The role of research in professional development in EE: 'recourse to technology'?**

Probably the dominant approach to research in the field of environmental education, certainly in North America, is one that

has been conceived and conducted within a theoretic paradigm similar to that which the social or behavioural 'sciences' borrowed from the natural sciences. This kind of research seeks to establish warranted propositional knowledge -- often based on quantitative data -- about teachers, learners, subject matters, schools, classrooms, curriculum plans and resources (and so on) and various interactions among them. Propositions that have been generated, verified and refined through such research have influenced the design of curricula and content and methods of teacher education programs (Gough, 1991, p. 2).

The extent to which this applied science approach to research is dominant in the field of environmental education over the last fifteen years or so can be determined readily by perusing the research reports published in the flagship journal of North American environmental education, the *Journal of Environmental Education*.

The challenges for research in professional development have been perceived as (i) accepting and focussing on the most appropriate goal for environmental education, (ii) operationalising environmental literacy, and (iii) taking the goals to the classroom (Hungerford, 1983). The first challenge has been taken as justifying a search for a single set of generally applicable goals for environmental education (Hungerford, Peyton and Wilke, 1980; 1983). The second challenge has been taken as justifying a tradition of research aimed at identifying variables or groups of variables which predict 'responsible environmental behaviour' in a manner that is generalisable to large segments of the population (see Hungerford, 1983; Hungerford and Volk, 1990). And the third challenge has been taken as justifying research aimed at a set of five questions:

1. to what extent is this goal important?
2. to what extent do existing curricula accomplish this goal?
3. to what extent is there a need for new curricula addressing this goal?
4. to what extent would new curricula addressing this goal be used by teachers?
5. to what extent would inservice teacher education be needed for new curricula addressing this goal? (Hungerford, 1983, p10).

In the event, the first question has rarely been addressed: goals for environmental education have been taken for granted (their normative and

ideological status has not been seriously questioned) and in fact steps have been taken to forestall any debate about the goals (see Hungerford, Peyton and Wilke, 1983; Jickling, 1990). Much of the research associated with professional development in environmental education has concentrated on either accounting for variance associated with responsible environmental behaviour in teachers and students, or determining the extent to which students, teachers, programs and schools accomplish the (taken for granted) goals of environmental education.

The 'recourse to technocracy' alluded to by Buzzati-Traverso (1977) is evident in the instrumental role accorded to research in this approach to professional development: the research is aimed at measuring achievement of goals whose normative and ideological status is not the subject of research; the goals are determined (imagined) independently of practitioners; the research assumes and reinforces a distinction between means (teachers, students, programs...) and ends (the goals); the research assumes and reinforces a division of labour between researchers and practitioners and between theory (embodied in the goals) and practice (what practitioners do); and the research treats complex interactions between teachers, students, subject matters and environmental and educational contexts as perceptible, measurable, generalisable, predictable and controllable. While such research is represented as objective and non-political, it entertains the politics of division and practitioner passivity that render it at odds with the critical and participatory aspirations of environmental education.

In the dominant approach to research in environmental education, teachers and pupils tend to be seen as essentially manipulable by the researchers: it is considered proper to apply "behavioural intervention strategies" and to "manipulate situational factors in order to produce desired behavioural changes" even if the individuals do not necessarily want to change in this way:

Thus, in situations in which individuals do not possess those personality characteristics which would lead to the development of a desire to help alleviate environmental problems, these individuals may be enticed into behaving responsibly toward the environment by the application of behavioural intervention strategies (Hines, Hungerford and Tomera, 1986-87, p.7)

It is not known at what point a person will forego economic and other personal benefits to do what preserves the integrity and stability of the environment ... it may be more efficacious, in the case of certain environmental problems, to manipulate situational factors in order to produce the desired behavior changes (Hines, Hungerford and Tomera, 1986-87, p.8)

The behaviourism of the dominant approach to environmental education research confers a strongly deterministic character to professional development -- it seeks to control (through prediction and reinforcement) certain ways of thinking and acting valued by the researchers. The dominant approach to environmental education research does not adopt a research perspective in respect to its own role in professional development.

### **Control and critical thinking: A contradiction?**

There is a tension between the predominantly behaviourist research in environmental education and the general purposes of environmental education as articulated in the early UNESCO-UNEP literature and reiterated in recent Victorian policy statements. Within a behaviourist paradigm, the problem of improvement of environmental education is seen as a matter of identifying and controlling the variables associated with (for example) "responsible environmental behavior" (Marcincowski, 1990). This is a deterministic framework: not only does behaviourism assume and seek to identify and explain certain relationships, it makes no in-principle distinction between these activities and those of control and enforcement by application of behavioural intervention strategies and manipulation of situational factors. Within this paradigm, two key assumptions that continue to be presented unproblematically are that "The ultimate aim of education is shaping human behaviour" (Hungerford and Volk, 1990), and "The acquisition of responsible environmental behavior has long been recognised as the ultimate goal of environmental education" (Sia, Hungerford and Tomera, 1985; Ramsey and Hungerford, 1989; Howe and Disinger, 1991).

Within this deterministic framework, behaviourist research translates into hierarchical control over practitioners' professional development. To the extent that this behavioural research succeeds, it not only creates and sustains a division of labour between researchers and practitioners, but also imposes the researchers' environmental, educational and social values (those values embedded in the goals that the research takes for granted) onto pupils and teachers in a way that is fundamentally disempowering. While to some this may be seen as the strength of the approach, in a democratic world interested in independent critical thinking about a range of social, political and (not least) environmental issues, such determinism is contradictory and self-defeating. Put at its simplest, the determinism of the dominant behaviourist approach to research in environmental education is anathema to independent critical thinking (or ... "it doesn't make sense to try to *force* people to be independent and critical"). Silberman (1970) makes the point that autonomous choice making and independent critical judgement are among those educational ends that are simply not measurable. Knapp (1990) seemed to put his finger on the problem when he recently posed the question, "Teaching for Responsible Environmental Action: Are we brainwashing or educating our students?". It seems a contradiction to adopt behaviourist approaches to research within an

environmental education context that has among its aspirations the achievement of critical thinking among teachers and students about environmental and environmental education issues.

### **The promise of non-behaviourist research in environmental education**

Perhaps the most obvious difference between behaviourist and non-behaviourist paradigms of research in environmental education is the difference in what counts as educational theory -- or, put more simply, whose goals are the focus of the research. In both interpretive (Cantrell, 1990) and critical (Hart 1990) paradigms of research in environmental education, there is a prime interest in explicating the "interpretive categories of practitioners" -- the aspirations, presuppositions, assumptions and values held tacitly or consciously by practitioners, and in terms of which their educational actions can be made intelligible. By focusing on these interpretive categories, the research addresses issues of interest and concern to practitioners themselves. Such research is concerned with the generation of knowledge within and for the context in which is used and has meaning, and only within which its consequences can be evaluated. There is little or no interest in generalisability as a measure of the success of the research -- research success is judged by its helpfulness in improving the *educational self-understanding of practitioners* in particular educational settings. Far from in some sense sullyng the research (tainting its claims to "objectivity"), a concern with the explication of practitioners' interpretive categories is the only way that the research can actually address the *educational character* of the issues it is focusing on. To be *educational* at all, environmental education research must engage (value; explicate -- certainly not ignore) the aspirations, assumptions, presuppositions and values actually held by the practitioner, because it is only in terms of these categories that environmental educational practices can be made intelligible. In the case of interpretive research like case study, this nearly always entails a role for the researcher as explicating these categories for the practitioner's "enlightenment" and self-appraisal. So an issue in interpretive research is that the researcher is usually an outsider rather than the practitioner.

In the "critically reflective inquiry" discussed by Hart (1990), the researcher is the practitioner him/herself. The critical reflection paradigm of research seeks through its own processes to reconceive the role of the practitioner in research and to reconceptualise the politics of educational research. As in interpretive research, credence is given to the interpretive categories of practitioners, but unlike interpretive research, the practitioner has the capacity to directly influence the direction that the research takes. This is an even more empowering condition than interpretive research -- it entails action beyond enlightenment. This assumption is more consistent with the fundamental interest of environmental education (that of encouraging independent critical thinking) than the deterministic impulse of behaviourist



environmental education research. In critical reflective enquiry, the practitioner has the opportunity (in fact, the responsibility) to "co-opt" the research to address and redress some of the contradictions, inequities and injustices that act to limit attempts to improve (environmental) educational situations. Critical research exceeds the "enlightenment" of interpretive research and aspires to "empowerment through action". The impulse in critical research in environmental education is for *self-determined* environmental, educational and social improvement. Thus critical reflective inquiry, as the name suggests, creates the conditions for the environmental education practitioner to actually enact some of the principles held dear to environmental education -- in particular, the principle of independent critical thinking. In considering different kinds of curriculum thinking, Willis (1981) states

The radical or reconceptualist form is superior, expressly because it includes consideration of both human consciousness and political action and thus can answer moral and social questions about curricula which the dominant form cannot. It encourages individuals to be intelligent, autonomous agents, taking responsibility for their own actions and encouraging the intelligent, autonomous actions of others within a mutually interdependent and evolving social situation (Willis, 1981).

It is significant that these sentiments could apply to research into environmental issues as well as research into environmental education issues.

### **Participatory research in environmental education: A current example**

A recent research project coordinated by and involving nineteen member countries of the OECD has adopted a research perspective on the role of research in professional development in environmental education. Central to this project has been the view that the research itself is a medium whereby practitioners can participate more actively in critique and action aimed at transforming their working structures and relationships in a manner consistent with the aspirations of environmental education.

The research project recognises participatory research as a political activity. Formal educational settings are seen as being constituted of a number of power relationships, in which (typically) there are relatively more powerful groups (for example, administrators and teachers) and relatively less powerful groups (for example, students). It is recognised that a minimum achievement of educational research is the description of an educational setting, and that any description of such power relationships is political, at least in the sense that description of the relationships makes them more public and hence more open to scrutiny and to changes in the distribution of power. Participatory research proffers itself as an agency for inside participants to address existing power

relationships that are perhaps perceived as inequitable in some sense or another. Participatory research has an interest in internalising the research agenda -- in enabling participants to direct the research towards issues of interest and concern to themselves.

*The OECD project "Environment and School Initiatives"*

There are two distinctive features of the OECD-CERI project: first, its emphasis on a special kind of "dynamic" environmental education; and second its interest in participatory (action) research at a number of levels.

It has become customary to distinguish between three kinds of environmental education: 'education *about* the environment', 'education *in* the environment', and 'education *for* the environment'. With its emphasis on the development of dynamic qualities in curricula that are critical, action-oriented and community-based -- rather than on reinforcing passive learning qualities through an essentially transmissive curriculum -- the project encourages 'education *for* the environment'. It is this form of environmental education that represents the most interesting alternative to conventional environment-related curricula, challenging some curriculum commonplaces such as discipline-based curriculum organisation, restrictively school-located learning, and a reliance on pre-ordinate text-based knowledge. The socially critical orientation of this form of environmental education offers an alternative to vocational and liberal forms of environment-related study (Greenall Gough and Robottom, 1991).

Structurally, the project to date has operated in two overlapping phases. The first phase involves a number of schools in each participating country in developing environmental education curricula which are consistent with two basic aims:

- (i) to help students develop an understanding of the complex relationships between human beings and their environment through interdisciplinary enquiry; and
- (ii) to foster a learning process which requires students to develop 'dynamic' rather than 'passive' qualities, for example 'exercising initiative', 'accepting responsibility' and 'taking action' to resolve real environmental problems within their locality.

John Elliott of the Centre for Applied Research in Education (CARE) at the University of East Anglia is a consultant to the OECD project, and states four guiding principles derived from these aims (Elliott, 1991, pp. 1,2):

- students should experience the environment as a sphere of personal experience ... by identifying problems and issues within their local environment;
- students should examine the environment as a subject for inter-disciplinary learning and research;

- students should have opportunities to shape the environment as a sphere of socially important action;
- students should accept the environment as a challenge for initiative, independence and responsible action.

In this first phase of the study, teachers in eleven countries produced forty case study reports of their attempts to realise the project's principles. Some of the problems that teachers reported in attempting to realise these principles relate to:

- implementing inter-disciplinary enquiry in schools where the curriculum is predominantly organised in terms of discrete subjects;
- handling the values-issues by students' active involvement in improving the environment in their local communities;
- handling the complexity of evidence about the effects of human beings' interactions with their environment;
- identifying and assessing the development of the dynamic qualities fostered by an active learning process (Elliott, 1991, p. 3).

Most of the participating schools received little support in addressing these kinds of problems in the first phase of the project. Phase 2 of the project is planned to provide a professional development support structure informed by action research principles, focusing initially on the problems identified in Phase 1, but importantly including in its ambit the working of the support structure itself. In June 1990 and June 1991, workshops on action research approaches to curriculum and professional development were provided for project participants. For Elliott, action research operates at three levels within this OECD project:

Students undertake action-research into how to improve the quality of their environment, while teachers undertake action-research into how to pedagogically improve the quality of students' curricular experiences. However, there is also a third level of action-research which focuses on the problems of providing support for the professional learning of teachers. At this third level action-research constitutes the means by which a support system is developed by those responsible for providing it. It involves those in pedagogical support roles [in] gathering evidence about their own practices to identify, clarify, and resolve the problems they experience in facilitating teachers' action-research at the second level (Elliott, 1991, p. 4).

Although in its early days, this project has the potential to make important contributions to the current debate about purposes, research and professional development, and the relationships among these. The project is exploring an alternative role for research in environmental education. By adopting action research at a number of levels (at the levels of students' environmental activities, teachers' educational activities, and pedagogical support persons' activities) the project represents a clear alternative to the dominant behaviourist approach. The project seeks to involve participants in each of the three constituencies in the research, whereas the behaviourist approach effectively creates and sustains a division of labour between practitioner and outside researcher. The project seeks to develop qualities of critical independent thinking about environmental and educational issues and practices, whereas the behaviourist approach, to the extent that it is successful in its attempts to determine behaviour, actually denies these qualities.

### **Conclusion**

Environmental education is at an interesting stage internationally. Different roles for research in professional development are evident in different geographical centres. These differences are not merely preferences for the use of alternative research techniques or methods, but represent different ideologies. The different roles accorded research reflect different approaches to professional development of practitioners and support different kinds of teacher professionalism.

This paper has argued for a reconsideration of the relationship among purposes, research and professional development in environmental education, and outlined an example of a current project which adopts this relationship among its research aims.

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