

Environmental Education in Canada: Contemporary Issues & Future Possibilities

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Introduction

Environmental education has become a major concern for many politicians, educators, and parents in Canada. The politics of resource scarcity, environmental deterioration, and failed economic theories have combined to force nations such as Canada to reassess their priorities. Environmentalism has matured to the degree that large numbers of environmentally related contradictions in Canadian society can be traced to patterns of western intellectual thought and debated in terms of differing ideologies relating to population, economic development, government policy making, the legal system, and to education. As we face the 21st century with growing uncertainty and threats to our understandings, our ideas, and our institutions, an environmental perspective may well come to dominate our consciousness and our education.

This paper develops an argument for reform in current environmental education practices within Canada at a time when educational systems in this country are becoming serious about incorporating an environmental perspective. After setting the context within systems of Canadian education, the paper attempts to capture the essence of environmental education activities by means of some broadly based Canadian contributions to the field and by two specific examples. The purpose of these sections is to throw into relief a number of tensions and contradictions in the contemporary theory and practice of environmental education in Canada and to identify a number of issues for debate in light of this experience. Finally, a proposal consistent with authentic principles of socially critical environmental education is suggested as a means of reconceptualising future environmental education activities within Canadian contexts.

The Context of Canadian Education

The issues confronting environmental education in Canada cannot be properly understood without considering certain Canadian societal and educational conditions that influence all educational development in this country. The Canadian constitution defines education as a provincial matter. The education provided in Canada's ten provinces and two territories has many common characteristics. For example, departments of education within each of the provinces and territories control what is taught through curriculum guides and

central examinations. However, each province and territory has unique features that reflect differences in political and cultural backgrounds, as well as geography and resources.

The most important source of diversity stems from Canadian adherence to policies of bilingualism, multiculturalism, and religious pluralism. Canada's population is approximately 40 percent British descent, 27 percent French and 33 percent divided among widely diverse ethnic and racial groups. Tensions have increased since 1982 when the new constitution guaranteed the right to education in both official languages, French and English. Other languages may also be used for instruction. For example, Indian and Inuit dialects are used at least to grade 6 where native populations predominate. From the early years cultural and religious influences have affected the nature of education in Canada. Today the effect of these influences is manifested in a variety of publically and privately funded school systems across the country.

The proximity of most of Canada's population to the United States has produced a continuous exchange of people and culture – including egalitarian ideas which influenced progressivism in the 1920s and new science programs in the 1960s. The receptivity of the western provinces to American influences can be practically attributed to another source of Canadian diversity – the geographical and environmental differences that influenced economic progress. According to the Organisation for Economic Co-operation and Development (OECD) (1976), there is a startling contrast between the virtually empty vastness of much of the country and a few tightly packed metropolitan areas. Even today, with improved communication and transportation systems, sheer geographic distance, topography and climate combine to raise politically and culturally related educational issues that cannot be ignored (Berg, 1985).

A conflict has always existed between those who espouse a liberal education for personal enlightenment and those who favour a practical education for personal and public utility. For example, science education in Canadian schools has focussed, traditionally, on practical issues. During the 1960s the Economic Council of Canada advocated science as a means of securing a better economic future for Canada, and new courses, imported from similarly motivated directives in the US, were developed for academically oriented students but were often out of reach of the general student. In the 1980s the focus shifted once again to school courses designed to meet many needs ranging from preparation for post-secondary education to skills for coping with everyday life. As a reaction to the American influence in science programs, federal support was provided for Canadian studies. In science, "Canadian" content within these Canadian studies courses related to such matters as environmental issues and the impact of science and technology on Canadian society (Connelly, 1985).

Despite historic, religious, cultural, and regional differences, the OECD (1976) described Canada as having one of the least politicised comprehensive public school systems in the world. Canada's reforms in education have resulted

more from pragmatic considerations than from political concepts of the future. In essence, educational programs were derived in the absence of an explicit, overall national conception of the country's interest. This perceived lack of national goals is a contentious issue in Canada - an issue that has directly impacted core school subjects and non core areas such as environmental education.

Most Canadian provinces and territories adopt similar procedures for curriculum development. The provincial department of education is responsible for all aspects of policy making, curriculum development, implementation and evaluation. Development occurs through provincial curriculum committees, comprised primarily of teachers. Most provinces have created more or less formalised curriculum development models. Some of these models are detailed explicitly in policy documents providing institutionalised procedures and formal stages through which proposed changes must pass. Change may be initiated by teachers, or when curriculum committees or others with some influence decide that the time for change has come. Differences in procedures are a function of size and system complexity. However, in all provinces, implementation of department guidelines or curricula typically involves familiarising teachers with documents that prescribe courses of study with varying degrees of specificity.

Thus, current Canadian curriculum practices tend to separate curriculum policy development at the provincial level (curriculum intention) from curriculum policy implementation at the board, school, and classroom level (curriculum translation). These practices have resulted in curriculum development by compromise and have generated tensions between provincial developers and teachers in the form of subtle and not-so-subtle pressures and influences. Current pressures and influences on educators appear to fall into four areas as follows: economic pressures direct curriculum development to address economic and labor market changes rather than real changes in pedagogy; knowledge pressures direct professional development activities to address knowledge deficiencies at the expense of pedagogy; equity pressures direct the educational system to seek "quick fix" solutions often employing band-aid remedies to complex educational concerns; and communication pressures focus attention on international test scores based on superficial statistics rather than focussing on deeper educational issues (MacKeracher, 1985).

Results of the second international science study on teacher perceptions suggest that Canadian teachers, while wishing to have more influence on the curriculum than now exists, by no means desire complete autonomy in curriculum matters. The most plausible interpretation of the results is that many teachers would like to influence the curriculum but that individual teacher independence in this area is not a goal--although there was substantial variation of opinion in this matter. On items related to instructional practices, there was much clearer agreement that these should be the teacher's responsibility. Teachers are less likely to vary content than teaching methods and are more likely to modify and

adapt curricula in a way that would yield classroom teaching practices that are compatible with their own teaching styles (Crocker & Banfield, 1985).

Examination of current curriculum practices in most regions of Canada reveals a pattern of uncritical adoption of the dominant North American model of educational change. This research-development-diffusion-adoption (RDDA) model presupposes that curricular intentions (goal development) at the provincial level can be separated from curricular transactions (classroom practice), that curriculum materials are sufficient to change practice in schools, and that research evaluation mechanisms can enforce quality. Generally, if improvements don't occur, teachers are thought to be at blame and we strive for teacher education programs that focus on improving teacher competencies. The objectivist epistemology that informs such a behaviourist, "scientific", or technicist view of change serves to constrain the extent to which change can occur. In addition, failure to account for institutional constraints of context, and for the educational theories of teachers combined with the pervasiveness of this technocratic worldview in the country have created an hegemony confronting educational reform that Robottom (1987) calls a "dynamic stability in the face of change".

Given these established patterns or tendencies in Canadian education, innovations such as environmental education tend to be "swallowed up" within the system. Environmental education issues within educational contexts in Canada are complicated by social and educational issues, including languages of instruction, federal policies of multiculturalism and religious pluralism, economic disparity, and geographic north-south tendencies, as well as traditional dominant forms of curriculum policy development and implementation that have depoliticised educational decision making. It is not surprising that, until recently, environmental education activity in Canada has remained almost invisible within mainstream educational practice.

Environmental Education within the Context of Canadian Education *General Perspectives: National or International?*

Canadian activity in environmental education, although substantial, is difficult to describe. This section provides a brief overview of selected environmental education developments in Canada as a means of uncovering perspectives that characterise environmental education within this country. Because this synopsis is not intended to be comprehensive, issues or perspectives may be missing. Perceptual gaps identified within this paper should encourage other Canadians to develop their own arguments, more explicitly. However, the absence of both a Canadian journal of environmental education and an active, federally funded network impedes interactive discourse, in search of common perspectives.

Historically, environmental education activity within the various regions of Canada has been the result of individual initiative. Key educators, typically with some influence on either university program course or materials development (e.g., Milton McClaren, Simon Fraser University; Kip Anastasiou, University of

British Columbia; John Marean, University of Calgary; Evelyn Jonescu, University of Regina; George Francis and John Towler, University of Waterloo; Bill Andrews, University of Toronto; and Tom Morrissey, University of New Brunswick) or on educational policy development, either formally or informally (e.g., Brian Herrin and Harvie Walker, British Columbia; Reg Houghton and Jim Martin, Alberta; Fred Heal and Barry Mitschke, Saskatchewan; Chuck Hopkins, Ontario; Claude Villeneuve, Quebec; and Dick Coombs, Newfoundland) have led the way. As a result, environmental education has spread into school systems and incipiently infiltrated government and school board policy throughout the country. These local developments have been quite remarkable given the relative isolation of these individuals who meet primarily at international conferences. Canada's only national conference on outdoor and environmental education, in Saskatchewan, in 1975, was never repeated.

In the last five years, Canadian participation in the field of environmental education has increased, especially at local school levels and within both federal and provincial government departments. For example, Environment Canada recently hired a Director of Environmental Education and published a fairly comprehensive framework for discussion on the environment which invites commentary on environmental education (Environment Canada, 1990). However, as Towler (1980-81) wrote a decade ago, the lack of national consensus regarding curricula, due to provincial control of education, has made it difficult to obtain a clear and comprehensive picture of Canadian efforts in environmental education. Despite improved communications networking, through the Canadian Commission for UNESCO's Man and the Biosphere Network (MAB-Net), the relative isolation of active environmental education centres in this vast country, the bi- and in some areas the multi-lingual nature of the discourse, as well as the absence of a national forum for environmental education debate, contribute to difficulties in keeping abreast of Canadian developments in environmental education. Thus, what was true in 1980, remains essentially true for 1990; there is no coherent understanding of environmental education on a national scale.

On the international scene, Canadian participation in environmental and environmental education policy development has been substantial. Canada has been involved in each of the major international conferences that have provided direction for environmental education, including Stockholm, Belgrade, Tbilisi, and North American initiatives such as the North American Regional Seminar of Environmental Education at St. Louis, Missouri (Aldrich, Blackburn, & Abel, 1977). Canadians were instrumental in transforming the US-based National Association for Environmental Education (NAEE) into the North American Association for Environmental Education (NAAEE). Recently NAEE conferences have been held at Lake Louise, Alberta and Quebec City, Quebec, the latter with a distinctively bilingual flavour. Many provincial environmental education associations have become NAEE affiliates.

From formal submissions to the World Conference on the Human Environment in Stockholm to participation in the development of the World Conservation Strategy and, more recently, the development of its own National Task force on the Environment and Economy by the Canadian Council of Resource and Environment Ministers in response to the World Commission on Environment and Development (Brundtland Commission), Canadian commitment to global environmental quality is obvious. In support of the federal initiative, each Canadian province or territory has formed "Round Tables" to work out details of a national strategy, termed "sustainable development". The Task Force recommendations will direct federal government funding programs in support of environmental education, as stated in recommendation 6.2 as follows:

Council of Resource and Environment Ministers members, in concert with education ministers and the Round Tables, should design an action plan to substantially upgrade environmental education. Special attention should be given to the elementary and junior high levels. Environmental economics and, in particular, the concept of sustainable economic development should be incorporated into high school and undergraduate studies (Government of Canada, 1987, p. 17).

Although the concept of sustainable development is not without its critics, the Brundtland Commission's "Our Common Future" report clearly signalled that the major politicians and business leaders in the world are beginning to understand the importance of environmental literacy for future citizenship. The question now becomes what roles can local and provincial educational authorities play in this process (McClaren, 1989).

The current Canadian response to this question is to adopt and adapt "tried and true" curriculum materials for school programs, whatever the source. For example, US-based programs such as "Project Wild" and "Project Learning Tree" have been widely adopted in many regions of Canada. Both of these projects typically have co-ordinators at the provincial level who have developed a network of local resource people as facilitators for in-service education of classroom teachers. Teachers can obtain print materials free, but only after attending a structured in-service program. In one province, British Columbia, Project Wild is currently sponsored for schools by the Ministry of Environment and Parks and Project Learning Tree by the Forestry Association, a non-governmental organisation. These programs are described as interdisciplinary and are intended to supplement current school programs. The Canadian Wildlife Federation has been the national sponsor for Project Wild and has supported a "Canadian" revision. According to McClaren (1989), because of the separation of federal and provincial responsibilities for public education, many excellent federally-sponsored materials such as Project Wild and Project Learning Tree are either never properly distributed or are underutilised in schools, even though schools are their intended sites of operation. I would submit that failed implementation stems

from more fundamental problems of process related to deficiencies within the dominant perspectives on educational change – deficiencies that assume independence between formulation and practice so that the operational form of the innovation (practice within existing school patterns) is incapable of meeting its rhetoric (theory) except through "solicitous surrender" (see Robotom, 1988).

Many other imported environmental education curriculum materials are available in Canada. However, other than those mentioned above, environmental education materials developed in Canada are more visible in Canadian schools. For example, the SEEDS (Society, Energy, Environment Development Studies) program developed by the Alberta-based non profit SEEDS Foundation is a most often quoted example of Canadian environmental education program development. Even so it has not received the same level of provincial ministerial (department) support as Project Wild. Similarly, groups such as WEDGE (Western Educational Development Group on Environment) at the University of British Columbia (formerly VEEP – Vancouver Environmental Education Project) are well known sources of locally developed curricula for environmental education. Many other materials are available through Canadian universities, such as the University of Western Ontario, and provincial governments such as Nova Scotia and Saskatchewan. In summary, the curricular landscape of environmental education is inhabited by many types of local, provincial, national, and international programs. However, the lack of ongoing federal, provincial, or local systems for co-ordination, teacher in-service, revision, and development is evident (McClaren, 1989) as is critical examination of the nature of this type of "reform".

A number of educational jurisdictions in Canada have developed environmental education programs. For example, the province of Quebec has an Environmental Studies course for the tenth grade level. However, in most provinces there are no required or recommended courses in environmental education, although provincial departments of education may grant permission for local school or district programs on request. The province of Alberta has recently developed an Environmental Education Curriculum Guide (1-12). Ontario has recently developed environmental studies courses at the middle years level and Saskatchewan has incorporated environmental literacy into the new science program (K-12). These developments appear to be consistent with a particular conception of environmental education which for years has advocated infusing environmental education into the entire school curriculum rather than creating new courses in an already crowded school curriculum. According to McClaren (1989) the difficulty with this practice is that if environmental education belongs to everyone, does it in fact belong to anyone? His response is to blend environmental education as a theme running through the curriculum with certain discrete environmental education experiences at critical points in the K-12 curriculum. Accomplishing this would require conceptualisation of new forms of professional development in environmental education that would serve to

transform (rather than merely reproduce) the educational conditions in a way that would allow teachers and their students to challenge (rather than preserve) critical consciousness about both environmental problems and the educational contexts in which they are set.

Canada, it seems, has a tendency to borrow the best from other countries. There is little tradition of major curriculum development initiatives paralleling the reform movements in Great Britain and the United States. The tendency in Canada is for governments to rewrite policy and then contract publishing companies to operationalise that policy in the form of textbooks. Given the relatively low status of environmental education in Canadian schools, that standard practice has been altered somewhat; the policy statements themselves are often borrowed, then materials are either borrowed or developed locally, reflecting regional geographic features. It would appear that Canadians are preoccupied with not "re-inventing the wheel". In spite of this tendency to borrow (perhaps "adopt" would be more charitable) some excellent locally developed curriculum materials have been produced. However, given their often regional specificity and the absence of national co-ordination, many of these materials remain generally unknown or unrecognised.

It is safe to say, on behalf of most provinces and territories, that environmental education initiatives are proceeding slowly, within those government mandates that actively encourage such activity, regardless of the political ideology underlying such motives. In order to focus attention on the scope and nature of such environmental education activity within the space limitations of this paper, it is necessary to select representative examples of environmental education for discussion and critique. The examples selected for analysis are the Alberta Education initiative in the development of an environmental education curriculum for the province and Saskatchewan's attempt to incorporate environmental literacy within the new K-12 science curriculum. The Alberta curriculum provides a clear, concise synthesis of environmental education thinking that, I believe, represents curriculum development initiatives that other Canadian education jurisdictions might engage, given adequate time and resources. The Saskatchewan example represents an alternative conception of environmental education incorporation within existing or newly developed curriculum areas. These contested conceptions of environmental education thinking in curriculum development will be used to raise issues that can inform future development in environmental education from varied, but distinctively Canadian, experiences and perspectives.

The Alberta Environmental Education Curriculum

The Environmental Education Manual (Alberta Education, 1983) was the product of collaborative curriculum development involving teachers, government personnel, business and industry, and the Alberta Specialist Council on Environmental and Outdoor Education. The curriculum guide, based on a

conceptual framework referenced to the Belgrade Charter, is interdisciplinary, multigrade (1-12), employs an objectives-based strands approach to planning, and includes case studies of "typical" teaching situations. Each grade level contains an organisational framework with an environmental focus and themes and an emphasis on both environmental issues study and out-of-school study or field trips. A sample of the general curriculum model is presented in Figure 1 below.

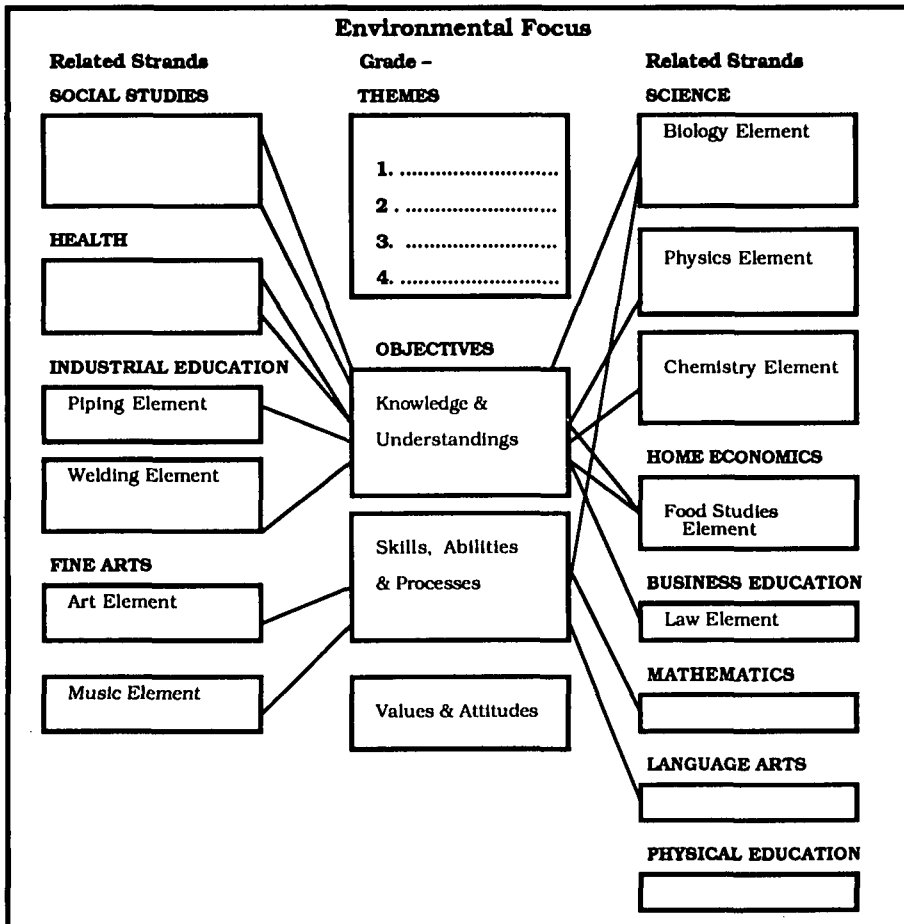


Figure 1: The Alberta environmental education curriculum model, 1983, p.2

Objectives statements are subdivided into areas of knowledge, processes, and values that have been distilled from information originating within the separate subjects resulting in a "complex network of web-like linkages which may appear, at least initially, to be somewhat overwhelming and difficult to follow". Provision of case studies and teacher experience are suggested among the ways to alleviate these concerns. Each grade page for the environmental education manual

is organised according to the model – an environmental focus column contains suggested themes and recommended objectives connected to subject area strands.

The introduction to the environmental education curriculum guide indicates that "an approach to planning can originate in any section of the model". The guide suggests that teachers may limit environmental education instruction to the material listed for a single subject. However, the opportunity exists to expand the planned program to include material from other areas or to engage in a team teaching or team planning exercise in order to track a variety of linkages from the subject to the focus or from a focus to one or more subject areas.

The intent of the developers of this environmental education "manual" are evident in the introductory section.

At least a part of the essential core of education could be said to focus on environmental education ... For the purposes of the Alberta Education curriculum plan, the definition of environmental education selected is the one accepted by the nations of the world during the Belgrade Charter presentation ... Environmental education falls naturally into two segments: education *about* the environment which may consist of conventional study, research and experimentation within the classroom, library or laboratory, and education *in and for* the environment which includes out-of-school or on-site practice and investigation. Education *in and of* the environment can and should include some on-site study where the two-dimensional world of theory gives way to practice and investigation in the three-dimensional arena (Alberta Education, 1983, p. 1).

A companion document "Environmental Education Catalogue of Resources" has been made available to all Alberta schools. This catalogue lists resources in three categories: print resources, non-print resources, and physical resources listed in five zones of the province.

The Saskatchewan Science Curriculum (K-12)–Inclusion of Environmental Education

The Saskatchewan initiative in curriculum redevelopment was based on a new set of goal statements that were interpreted in terms of six common essential learnings (CELs) including: communication, numeracy, creative and critical thinking, personal and social values and skills, technological literacy, and independent learning. Extensive public consultation resulted in the provincial department of education policy documents mandating a core curriculum. Science was designated as one of seven core subject areas that are charged with incorporating the CELs.

The curriculum development process was specified by the department of education. Based on initial recommendations, a field study engaged teachers in debate about proposed science education policy (Hart, 1989). One of the most contentious issues, especially among secondary science teachers, was the notion

that science programs should incorporate a science, technology, society, environment (STSE) emphasis. Deliberative sessions with teachers in each region of the province attempted to advance this debate by exploring the assumptions underlying the contesting views of science and education.

The proposed framework for science education included the notion of environmental literacy, embedded within an overarching goal of scientific literacy. Environmental literacy was characterised through reference to environmental education goal statements in the Belgrade Charter (UNESCO-UNEP, 1976) as well as the contributions of authors such as Fensham and May (1978), Harvey (1977), Hungerford, Peyton, and Wilke (1980), Lucas (1980), McInnis and Albrecht (1975), Stapp and Cox (1982), and Tanner (1974) and was interrelated to science education through ideas of Bybee (1984), Gaskell (1982), Hurd (1982, 1986), Orpwood and Souque (1984) and the Science Council of Canada (1984).

The debate among teachers centred on perceptions about the science, technology, society movement within the field of science education. Inclusion of environmental literacy was almost universally accepted by Saskatchewan teachers. It was interesting to observe teachers in debate. Many teachers indicated that science curriculum deliberations provided the unique opportunity to reflect on their personal assumptions about science and science education and to appraise, collectively, their practices in light of contesting viewpoints.

The resulting science curriculum policy documents attempted to incorporate a wide range of teacher views about their ability to change teaching practices and the degree of support that would be required to adopt new science curricula. These teacher reconstructions of curriculum policy proposals are currently directing science curriculum development activities within Saskatchewan's department of education. It remains to be seen whether this attempt at collaborative curriculum development, couched as it is within the provincial department's model of curriculum development, can stimulate teachers to improve science programs any more effectively than the traditional, non collaborative, centralized curriculum development models of the past.

Appraisal of Environmental Education in Canada

Appraisal of the Canadian approach to environmental education must be considered in respect of its apparent epistemology, interests served, and locus of control; in short, in respect of its educational theory. The view of knowledge sustained by the Canadian perspective is objectivist in the sense that development, research and evaluation of environmental education curriculum materials have occurred within a scientific/analytic paradigm. Environmental educators have tended to seek credibility within the academic community in North America by adopting the empirical methods of science education research and development. Adopted program goals, as in both the Alberta and Saskatchewan examples, contain embedded ideological elements which are not regarded as legitimate sources of knowledge within this paradigm. However, given the dominant

epistemological paradigm, these goals, whether legitimately derived or not, are reified by researchers and practitioners rather than being regarded as a set of problematic ideas. In addition, program effectiveness is instrumentally determined thus, preserving the interests of the administrators.

Both Alberta and Saskatchewan examples of environmental education curriculum development preserved a co-ordinating role for the provincial department of education while opening the possibility for materials development by teachers. Both provinces sought to tap environmental education goals (and objectives) from the highest or best "authority" and to publish these as guidelines or guides. The resulting policy documents passed through a kind of process that may be described at least as an intellectual trial by stakeholders, curriculum advisory committees and provincial government hierarchies. For example, the Saskatchewan project was screened by the Official Minorities Languages Office (OMLO), and the Community Educations branch as well as the Curriculum and Instruction branch of Saskatchewan Education which includes regional curriculum co-ordinators. This consultative process appeared to proceed smoothly to implementation where all conventional curriculum development activities of recent years seem to break down. Curriculum guides are produced rather easily but dissemination and use by teachers are severely constrained by a disjunction in discourse (Robottom, 1987). That is, those obligated to implement the reform are obliged to inherit the terminology of the reform without having been party to the negotiations and discourse which shaped the particular agreed meaning. Canadian examples of reform in environmental education reinforce those points made by Robottom (1987), in his critique of Australian and American attempts at environmental education induction into educational systems; environmental education is a piece of a different jigsaw puzzle yet conventional administrators attempt to place the piece within the existing conventional puzzle made of subject area pieces.

Despite the rhetoric of the Alberta manual concerning education for the environment which connotes interdisciplinary, socially critical environmental education, the framework is clearly disciplinary and primarily concerned with education about the environment and in the environment. The form of environmental education advocated clearly was not meant to challenge existing institutional structures and practices. Thus, these Canadian examples of environmental education have separated theory (represented by the developer's goals and rhetoric) from practice (represented by suggestions for subject incorporation). Surrendering environmental education practice, in effect, reduces the environmental education label to a slogan and simply reproduces, thereby legitimatising, existing school practices. In essence, these Canadian examples have quoted the goals of the Belgrade Charter without allowing them to be carried through to their logical consequences in terms of educational practices. We have aborted the mission at the implementation stage due to our failure at the design stage. Impediments to curriculum change, such as disciplinary curriculum

structures and habitual teaching patterns, have been reinforced by the apparent objectivity of the existing education "system". The locus of control, within the scientific/analytic approach to education, resided with the academic researchers or evaluation "experts" who imposed sophisticated quantitative analyses "on" the programs, teachers, and students. Decision making was associated with expertise in the application of the scientific method to the education system, thus disempowering teachers and, ultimately, students.

The dilemma facing Canadian environmental educators is the double indemnity of accepting someone else's (typically American) hegemony, uncritically. Not only do we as Canadians stand witness to power-coercive models of change in environmental education, we willingly subject ourselves to the contradictions embedded in such approaches, thus reducing the professional status of our practitioners not to our own academy but to that of another nation.

Environmental education in Canada over the past 25 years has been strongly influenced by international developments. Although the language of the environmental education movement in Canada is still dominated by distant proclamations such as the Belgrade Charter (1975) and the Tbilisi Declaration (1977), as well as UNESCO-UNEP documents such as "Connect", program materials are imported from regions much closer to home. Thus, the Canadian environmental education movement, similar to Canadian society and education in general, espouses genuine global thinking at the level of rhetoric and American-like practice on the ground, in program delivery. Obvious tension arises when contradictions between adopted theory and adopted practice are revealed. As a result of our penchant for borrowing, some might call it a lack of national creativity (which may be a self-fulfilling Canadian oxymoron), Canadians often find it difficult to explain our rationale for action. Perhaps we do need to re-invent a few wheels! But how?

A Modest Proposal for Environmental Education: Essential Concepts for Deliberation

Environmental education as it evolves in the 1990s will require clear thinking. Because environmental education has roots in both environmentalism and education, and because all three fields of study are very complex and themselves evolving, a brief diversion into each of these fields is necessary in order to ground the notion of authentic environmental education, that is, reconstructing practice in light of existing rhetoric, then rendering both problematic.

Environmentalism

The field of environmentalism has matured to the point where it has begun to explore philosophically the pattern and content of intellectual thought that has spawned management techniques as well as political activism. Environmental issues involve divergent patterns of thought, irreconcilable dilemmas involving a clash of ideologies. Environmental ideologies relate to long and powerful

antecedents deeply embedded in intellectual thought. Environmentalism today is devoted to appraising differing ideologies; it can no longer be identified simply with the desire to protect ecosystems or conserve resources because these are merely manifestations of much more deeply rooted values (O'Riordan, 1981).

Given the importance of environmentalism to future educational thought, it is necessary to understand that environmentalism is not a unified movement or body of thought. Slocombe (1987) describes two major streams of environmentalism, each including several variants. Environmentalism as "plan" includes sustainable development, World Conservation Strategy, ecodevelopment, conserver and information society, and international conservation groups. Environmentalism as "goal" includes, primarily, the deep ecology movement, bioregionalism, and green and "earth first" activist groups. The former is a rational scientific approach with major planning, research, management, and educational strategies primarily aimed at merging economic development with conservation of natural resources. The objective is to create a better environment but without changing anything quickly or fundamentally. The latter is a rebellion against the scientific, managerial rationality, to the extent that it makes concern for the environment a philosophy and demands *action* to save the environment now, through concepts such as participatory democracy and decentralisation.

What does this problem of divergent perceptions mean for environmentalism? Most fundamentally, we are coming to recognise the subjectivity of our individual worldviews and societal universes (Harrison, 1985). According to Slocombe (1987), it will be new paradigms, not technological innovations, that will determine our response to the challenges and form that society takes in the future. These changes in society may force a reconciliation of the streams of environmentalism and this will be accomplished through the use of education to give environmental education a whole new substance.

Environmental Educationism

What will be the nature of this substantively new and different environmental education? To answer this question it is necessary to examine, briefly, the nature of environmental education as it was originally intended to relate to education in schools. This examination, when coupled with an understanding of the many ways in which environmental education has been interpreted in Canada, throws into relief the reasons for two emerging streams of environmental education, streams that parallel the streams of consciousness in environmentalism.

Environmental education has always had a revolutionary purpose of transforming the values that underlie human decision making from those that promote environmental degradation to those that support a sustainable planet in which all organisms can live with dignity. This purpose contrasts with the traditional purpose of schools charged with conserving the existing social order

by reproducing the norms and values that currently dominate political, hence educational decision making. Stevenson (1987) lists several curriculum and pedagogical contradictions that result from these contrasting purposes. While authentic environmental education curricula are intended to be interdisciplinary and focus on real practical problems that are emergent and problematic in the sense that there is uncertainty in how students and teachers go about solving environmental problems, traditional Canadian school curricula tend to be information-based (by subject or discipline) and to emphasise abstract theoretical problems with predetermined solutions where attainment can be readily assessed. Accordingly,

A function of knowledge in environmental education is immediate use for the social value of a sustainable and emancipated quality of life, which contrasts with the major function of school knowledge as for future use ...

While environmental education advocates learning that is holistic and cooperative, school learning tends to be atomistic and individual ...

In environmental education rhetoric students are active thinkers and generators of knowledge, but in schools students are usually in the passive position of spectators and recipients of other people's knowledge and thinking ...

The mastery of relevant knowledge and skills is demonstrated in environmental education by students' actions in real situations, not by students' writing in theory about artificial situations (Stevenson, 1987, pp. 75-76).

Authentic environmental education represents a challenge to established practice in education; it entails new ways of relating to subject matter, students, and the social-environmental context. Particularly important in light of this challenge are teachers' epistemological and pedagogical beliefs. These beliefs influence the form of knowledge that is embodied in educational programs, whether the technical way of knowing that characterises most school programs or the more subjective way of knowing that characterises environmental education rhetoric in documents such as the Belgrade Charter (1975) and Tbilisi Declaration (1977). These epistemologies are, in turn based on alternate views of reality and ultimately on conflicting worldviews that are largely objectivist, in school organisation and practice but subjectivist in environmental education philosophy.

The nature of current school structure and function in Canada, as traced to dominant, positivistic traditions in schooling and in the field of education, sustains an hegemony in teachers' actions in schools as well as in their espoused beliefs and underlying ideologies. McIntyre (1985) refers to this condition, which I ascribe to Canadian education, as the institutionalisation of dominant beliefs about knowledge, teaching and learning. Introducing environmental education authentically into the school challenges the dominant conception, organisation, and transmission of knowledge, creating for most teachers a conflict in their approach to teaching and learning. However, if environmental education

in its "true to the rhetoric" contemporary form is ever to become a reality in schools, then these issues must be seriously addressed (Stevenson, 1987).

Authentic Environmental Education: The Road Not Taken in Canada

Within the field of education, Robottom (1990) characterises two streams of environmental education activity. These alternative approaches to environmental education represent different interpretations of how environmental education curricula ought to be organised. The behaviourist approach serves a curriculum reproduction function in that environmental education curricula are designed external to local teaching situations, typically by experts, for implementation (which in some cases is mandated) by teachers. One of the reasons that sustained change seems unlikely under these conditions is the hierarchical distinction that separates theory (and research) from practice, thus denying practitioners the power and opportunity to engage in practical issues that tend to emerge as curricula are enacted, in context. According to Popkewitz (1983) when environmental education curricula are intended (as in Project Wild or Project Learning Tree) for infusion into existing disciplinary-based or core courses for the purpose of enriching or extending that curriculum, such innovations actually legitimatise the ongoing patterns of educational conduct and serve a reproductive and not a reconstructionist function. The interests are in getting the goals and materials right, as well as in measuring goals achievement, and not in the role of teacher's theories and practices shaping and being shaped by the experience of reform.

In contrast, the "participant research and curriculum development" approach serves a curriculum reconstruction function in arguing the importance of participation of the teacher in improving environmental education in the schools. This approach is not simply a technology to serve the purposes of the proponents of mandated curricula with teachers as mere cogs in the machinery. Instead, teachers are regarded as having influential theories and values about environment and education which guide their actions, the real-life working conditions of teachers need to be addressed, and authentic teacher participation in curriculum development and research is supported. Rather than heavy emphasis on universal goal statements or the universal effectiveness of particular curriculum packages, emphasis is placed on the *process* of creating conditions for teachers to take a more central role in curriculum planning, given the political and pedagogical nature of educational change and the importance of participant involvement in educational change. As I have argued before,

the process problem remains in environmental education because environmental educators have not focussed on the real-life working conditions of teachers, their perceptions about change, and the support system needed to facilitate change in teaching method demanded by these new curriculum materials (Hart, 1988, p. 18).

According to Robottom (1990) environmental educators must reconsider their approaches to environmental education in light of the *real* constraints to environmental education, those idiosyncratic, context-dependent, political problems that are so unlikely to be susceptible to universal solutions and so much in need of personal practical inquiries. Posch (1988) recommends the creation of conditions for teachers to communicate extensively with each other and to reflect systematically on personal practices. Robottom (1990) suggests a form that such an approach to environmental education professional development might take where teachers engage in "critical" environmental education, education for environmental responsibility. This form of professional development in environmental education is based on critical educational theorising, a form of educational enquiry that values teachers' personal theories of practice as well as the interactive relationship of these *theories* on the one hand, and both personal and institutional *practices* on the other. This form of educational theorising is, essentially, an interpretation of an interactionist (dialectical) view of the relationship between practitioners' theories and practices. Such environmental education enquiry recognises environmental education as a political activity concerned with ideology critique, that is, recognising ideology in its various forms – false consciousness, oppression, or hegemony (Robottom, 1987).

If Canada is to adopt an authentic approach to environmental education a different view of knowledge would be necessary – a constructivist view in which knowledge is individually *and* socially constructed through active participation in the process of decision making in light of the historical and cultural context. Environmental education would be informed by deliberative enquiry into the rationales of alternative courses of action. In this view educational practice becomes praxis – a process of critical reflection upon personal improvement involving a dialectical relationship between thought and action.

An authentic approach to environmental education would involve teachers as researchers, participating as equals in improving practice and contributing to practice-based theory within a complex, problematic, politically motivated educational context. An introduction to the details of participatory action research is found in *The Action Research Planner* (3rd ed.) (Kemmis & McTaggart, 1988). The perspective on a critical approach to educational research developed by the education faculty at Deakin University, Victoria, Australia has made a significant contribution to the recent literature in environmental education, as it has to the field of education in general.

Because a critical approach to environmental education seeks to promote debate among participants involving a process of self reflection about the relationship between their own personal theories of action and their own practice in context, the interests served are their own. The locus of control is internal in that understandings are grounded in personal praxis through a collective commitment to a set of negotiated principles of procedure (Kemmis & Robottom, 1981). According to Henry and Kemmis (1985) creating the conditions for

teachers to engage in critique of their own educational predicament involves self-critical communities of teachers committed to enlightening themselves about the relationships between circumstances, action and consequence in their own situation and to improving their practice and their ability to theorise about that practice.

Conclusion

Given a description of some representative Canadian practices in environmental education, it is clear that we must begin to seriously examine the political theories guiding our educational actions. Traditional curriculum development models are RDDA variants and the process is deliberative only in the sense of confirmation of policy and curriculum development. To be fair, the Saskatchewan model appears to at least engage the notion of deliberative enquiry in the sense that policy proposals received direct teacher scrutiny prior to department acceptance. The problem remains that conditions were not created for ongoing deliberative debate as the new curriculum materials were implemented. The language of this discussion, itself, betrays the dominant paradigmatic stance of Canadian curriculum activity.

It must be recognised that, in environmental education, rhetoric is an environmental world view that encourages a socially critical approach to education and that proposes practice authentic to rhetoric. The argument is being made in several nations. Given Canadian culture or multiculturalism, the opportunity exists for participatory practitioner research and reflective enquiry – for ideology critique which serves an emancipatory knowledge-constitutive interest according to the following principles of participatory research and curriculum development: professional development in environmental education should be enquiry-based (current environmental education activities should be regarded as problematic), participatory and practice-based (direct practitioner involvement in closing theory-practice gaps), critical (entails critique of the underlying environmental and educational values and assumptions that inform existing environmental education policies, activities and organisational practices), community-based, and collaborative (to address issues of false consciousness, and the political character of forces shaping environmental education) (after Carr & Kemmis, 1983; Robottom, 1987).

Given the global perspective eschewed by environmental education rhetoric and the existence of a North American Association for Environmental Education, it is not unreasonable to consider Canadian perspectives on environmental education within an international context. More important than national views is the contribution that each experience in environmental education over the years can bring to bear on issues that need to be addressed through the 1990s and into the twenty-first century. This paper draws on the Canadian experience, necessarily using selected examples, in an attempt to describe and critically analyse contemporary environmental education. The result of this analysis raises

number of issues that point to the need for a more authentic environmental education for the 1990s and beyond, where environmental education practice becomes more consistent with environmental education rhetoric and which in turn will transform the rhetoric, which will transform the practice and so on ... and so on ... and so on ...

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Dilence ~

Deep within Your stillness
We see

The one mind,
The one soul,
The one heart of mankind
Is surely being born.

Neardos.