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DIRECTIONS FOR ENVIRONMENTAL

EDUCATION

A Position Paper

of the

Alberta Department of Education

May, 1974

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DIRECTIONS FOR ENVIRONMENTAL EDUCATION

I. INTRODUCTION

In the face of rapid deterioration of earth's interlocked life-support systems, we will need to explore quickly and accurately all the probabilities for survival -- both to sustain life and to give it meaning. Environmental education, therefore, must dominate our future horizon -- if there is to be a future horizon. (Commission on Educational Planning, 1972, 192)

The root problems of our environmental crisis are associated with three broad but interrelated areas: excessive population, poor conservation, and pollution. However, the major problem is man! Man's ignorance of ecological concepts and processes, his insensitivity to the environment, and his lack of constructive action in relation to the environment, constitute the kernel of the problem. Our crisis arises largely from a "caveman mentality" that assumes that the environment can absorb anything that man dumps into it. As Pogo said, "We have met the enemy and he is us!"

Many short-range solutions have been proposed including application of more technology, sterilization agents in drinking water to curb population, mandatory instruction in birth control methods, replacement of the internal combustion engine, rigorous new laws and legislation, vigorous enforcement of existing laws, pollution tax, and various crash programs to save the environment. Many of these solutions have merit, but they alone are not sufficient to solve our environmental problems. We need to eradicate the fallacious attitude among our citizens that our environmental problems will be solved with no personal sacrifice of energy, time, money, or convenience. ("Environmental Education: Curriculum Imperative," Curriculum Focus, ASCD Occasional Paper, January, 1974)

Education in environmental matters, for the younger generation as well as adults, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. (Stockholm Conference on the Human Environment)

Restoration and maintenance of environmental quality is not only a legitimate concern of government officials and planners, but it is the responsibility of citizens, acting individually and in concert. As Pogo said, "We have met the enemy and he is us". The solution to environmental problems lies with each and every citizen.

However, to make an effective contribution towards environmental quality, citizens must first become aware of the environment in which they function. They must understand the inter-relationships of man and nature that exist within their environment and recognize that the quality of their life is intimately related to and dependent on the quality of the natural environment. Provided with a sound basis of understanding, citizens will be better prepared to evaluate actions and influence decisions that affect their environment. The preparation of an aware, understanding and involved citizenry is the task of environmental education. (Education For Environmental Quality, Department of the Environment, Government of Saskatchewan, October, 1973)

The above quotations help to set the stage for the development and understanding of a framework for environmental education as it should be practiced in elementary and secondary schools in the Province of Alberta.

As indicated above, environmental education may be viewed as a matter to dominate our future horizon in education. It must be considered as an essential and major variable in educational planning,

program development, and the implementation of the schooling process.

This publication presents a description of the Alberta Department of Education viewpoint on what constitutes environmental education, and how it should be included as a part of schooling. In addition, policy statements containing implications for other stakeholders in environmental education are included.

II. WHAT IS ENVIRONMENTAL EDUCATION?

Perusal of the literature and interaction with individuals and groups concerned with environmental education quickly results in the establishment of the complex nature of environmental education. It is simpler to indicate what environmental education is not, rather than what it is. In spite of the difficulty, many attempts have been made to define environmental education.

In a report entitled The Status of Environmental Education in Ontario - 1973, the following definition is given:

Environmental education must be the process of communication of at least the rudiments of ecology - the relationship between man and the material and man-made environment. The ultimate goal of environmental education is the development of lasting public awareness of, and participation in, issues concerning the quality of our surroundings.

What is required is a re-organization, and a re-emphasis of presently existing and related interdisciplinary concepts to provide a unified approach to environmental concern.

This report further states:

Whatever label is given to environmental education, it seems to be agreed that it is a valid learning experience which should encompass all of the disciplines and give an ecological perspective to every aspect of learning.

In an occasional paper of the ASCD entitled Environmental Education: Curriculum Imperative! Sale indicates that:

Environmental education involves a process of developing a citizenry that is knowledgeable about its environment, aware of the opportunities for citizen participation in environmental problem solving, and motivated to take part in such problem solving. It involves knowledge, attitude, and action. As a result of a productive environmental education program, an individual should become increasingly more capable of making enlightened choices and taking positive action relative to the quality of life.

Consistent with the above examples, one might state that environmental education is:

- an approach to teaching about man's relationship to his environment -- how he affects and is affected by the world around him.
- an integrated process dealing with man's natural and man-made surroundings.
- experience-based learning using the total human, natural, and physical resources of the school and surrounding community as an educational laboratory.
- an interdisciplinary approach which relates all subject areas to a whole-earth "oneness of purpose".
- oriented toward survival in an urban, technologically centered society.
- life-centered and oriented toward community development
- an approach for developing self-reliance in responsible, motivated members of society.

- a rational process to improve the quality of life.
- geared toward developing behaviour patterns that will endure throughout life.

The consensus is that environmental education is:

- more than conservation, outdoor resource management, or nature study (although these areas may be included in an environmental education program).
- not a cumbersome new program requiring vast outlays of capital and operating funds.
- not a self-contained course to be added to the already overcrowded curriculum.
- not merely getting out of the classroom.

What Are The Basic Ingredients?

The ecological perspective and all attempts at environmental education must be concerned with four basic ingredients:

1. Man's biological requirements -- what he needs to live -- food, water, shelter, air, soil;
2. Cultural aspirations -- what he wants -- swimming pools, fast cars, big houses, etc.;
3. Man-made environment -- such as his house, his street, and his city;
4. Natural environment -- such as oceans, rivers, forests, and so forth.

Everything we do has an effect on one or more of these basic ingredients.

III. OBJECTIVES OF ENVIRONMENTAL EDUCATION

Any set of objectives for environmental education should be consistent with overall goals of education. For basic education in Alberta, these have two primary thrusts, namely;

1. to meet the needs of the individual, and
2. to meet the needs of society.

The goals of education involve the student becoming more effective in communicating, deciding, knowing, organizing, creating, valuing, and caring. While each of these activities has implications for environmental education, it is perhaps in those associated with deciding, valuing, and caring that increased emphasis and concern must be fostered.

In the light of the above, an interesting description of objectives for environmental education has been enunciated by Sale:¹

1. *To obtain a clear understanding that man is in an inseparable interrelationship with his environment. Especially critical is an understanding of various ways in which man may systematically interact with the biophysical environment to advance human welfare.*
2. *To obtain a broad understanding of the interrelations among ecosystems and natural resources. This understanding should include knowledge of the characteristics, distribution, interrelations, and uses of natural resources.*
3. *To develop an understanding of man's environmental problems and the decision-making skills to solve them. Specific attention should be given to various organizational strategies, social arrangements, and environmental maintenance and improvement processes.*

¹ "Environmental Education: Curriculum Imperative", Curriculum Focus, A S C D Occasional Paper, January, 1974

4. To develop attitudes which will foster positive action relative to the environment. Emphasis should be given to various dimensions of the affective domain including environmental value analysis strategies.

William H. Boyer views the school as an agent in aiding the student to:

1. Develop an environmental awareness. (See the interdependent connection between their life and the ecological life-support system. Understanding self-destruct systems.)
2. Learn to practice an environmental ethic. (Act responsibly toward the environment with respect to noise, pollution, re-production, energy consumption, conservation, recycling.)
3. Understand the limits of individual responsibility and the need for collective action. (The tragedy of the commons problem, which requires equal application of law.)
4. Understand the characteristics of a global steady state system. (Macro-ecological criteria must guide socio-economic planning.)
5. Distinguish between a static and a dynamic steady state system. (Plan increases in quality of life rather than quantity of production and consumption.)
6. Design futures based on integrated ecological and social planning. (Increase social justice, design new forms of work, and develop participatory planning. Make exploited minorities beneficiaries of environmental change.)
7. Identify public policy transition steps toward a just, dynamic, steady state system. (Propose the kind of legislation needed to effect the transition nationally and globally.)
8. Participate in the political action necessary to help effect new policy. (Connect theory and practice, revise both in light of new experience, learn ecological citizenship education.)

The Ministry of Education in Ontario, in its publication, Environmental Science, outlines four aims of environmental science:

Four aims could be set down for Environmental Science. As with other parts of the curriculum, the first aim of learning experiences devised from this guideline is to enhance the development of the student in his many dimensions. The second aim of Environmental Science is to help the student find logical patterns in terms of which he can understand and describe his environment. The third aim is to give students practice in various methods of investigation as well as experience with equipment and techniques currently used in specialized fields. The fourth aim is to encourage the student to become sensitive to environmental concerns and value issues within the community. This aim is central to the course because the quality of human life during the next century, and perhaps human survival are dependent on an understanding of our environment and a common will to make decisions for the common good. All four aims imply a personal harmony with nature.

The tenor of the preceding remarks is consistent with the viewpoint of the Alberta Department of Education. This perspective of a vital interdisciplinary, activity-centered context for environmental education in Alberta provides the basic rationale for the following descriptions, recommendations, and guidelines.

IV. THE PRESENT STATUS OF ENVIRONMENTAL EDUCATION AS IT RELATES TO ELEMENTARY AND SECONDARY SCHOOLING IN ALBERTA

In order to provide a basis for discussion, a brief and cursory description of current school-based activities related to environmental education is provided in the following pages. This description is from a Department of Education viewpoint and may not reflect adequately the current level of activities in the province of Alberta.

In the last few years environmental education has become a concern of the informal educators, associations that have an environmental orientation, anti-pollution groups and environmental activists, and of concerned groups and individuals who took it on themselves to carry the message to the people. The work of these groups has been valuable and is a necessary and vital component of a total approach.

In Alberta, the Department of Education, through the Curriculum Branch and a number of school systems, has given increasing attention to strengthening environmental education in the schools. Specifically, the Curriculum Branch and individual members of the Department of Education have been involved for some time in the development of courses related to environmental education. Traditionally, environmental education has been taught in connection with science courses; however, recently, with the introduction of the new social studies, greater concentration has centered on the social studies and the relevant environmental concerns. Similar changes in emphasis have been developed in industrial education programs. The programs of study and the curriculum guides for elementary science, junior high school science and the senior high school sciences, particularly Science 11 and Biology 10, 20, and 30, provide numerous opportunities for teachers to introduce environmental education. These opportunities are often not used for such reasons as: lack of teacher background, inaccessibility of, or failure to use suitable and relevant literature.

The strongest formal thrust in environmental education at the present time exists in the biology program at the senior high school level. For example, in the Biology 30 program, Unit 11, "Current Biological Problems" gives students an opportunity to deal with such envi-

ronmental problem areas as pollution, conservation, human overpopulation, and space biology. Unit III of the course, which is devoted to student projects, has abundant opportunity for students to become involved in individual projects that may and often do relate specifically to environmental concerns. In reference to Science 11, a general science course, a sample activity unit on page 5 of the guide is entitled, "Water Pollution" and is modelled on a "How To Do It" approach. A bibliography of conservation and pollution materials prepared by the Curriculum Branch for senior high school students and teachers has been disseminated throughout the province. The junior high school science program places a major emphasis on environmental concerns. In addition, the Group B Option program at the junior high school level provides many opportunities for environmental education activities.

Insofar as elementary education is concerned, real opportunities exist for an interdisciplinary treatment of environmental education as teachers implement programs on language arts, social studies, art, mathematics, and science. Many useful materials exist which could help teachers in such an approach, and it is hoped that as new curricular programs are developed, such action would be further facilitated.

V. WHERE DO WE GO FROM HERE?

The position of the Alberta Department of Education is that environmental education must be given a high priority in terms of policy and program development, dissemination, and implementation.

The Department of Education recognizes a shared responsibility for ensuring that appropriate activities leading to this goal are undertaken.

As indicated earlier, environmental education should be developed as an interdisciplinary activity, consistent with the goals of basic education, and utilizing the resources of many governmental, social and private agencies, groups and individuals. Recognizing the above, following are some of the implications for the Department of Education and selected others.

Implications For The Department of Education

Curriculum. Many important implications for curriculum development, dissemination, and adoption arise from consideration of needs regarding environmental education.

A major implication is the need to assess the existing pattern of course development in terms of its appropriateness for implementation of interdisciplinary programs. In this regard, course organization may be viewed from a short-term as well as a long-term perspective.

A short-range alternative would be to identify environmentally sensitive components of existing courses in all disciplines. After such identification, these components could be modified, if necessary, in order to accommodate the increasing priority and emphasis to be given environmental education. Appropriate decisions regarding such matters as resource materials, equipment, facilities, support services,

and professional preparation of teachers could then be made.

A long-term view could encompass several alternatives, one of which would be an extension of the short-range activity noted above.

A second long-range alternative is the restructuring of the disciplinary curriculum into modules which would constitute both "core" and "options". Interdisciplinary environmental education modules could then become part of a "mix and match" approach to program definition. The same module might be taken as a part of a science program by one student, and as a part of a social studies or industrial education program by another. The development of such modules would also facilitate an interdisciplinary approach toward teaching and learning in total. Appendix A contains a listing of some environmentally sensitive areas in which appropriate modules could be prepared.

These modules could be used with existing programs as in the short-range view, or as a part of the "core-option" modular approach described above.

A third long-range alternative would involve restructuring the curriculum in such a manner as to obliterate disciplinary distinctions. One possible organization of program which would enable the accomplishment of this alternative would be the organization of the curriculum on a "process skills" format. Program modules would be applied in order to provide a substantive contextual base for such key process skill developments as communicating, deciding, knowing, organizing, valuing, and caring.

The Alberta Department of Education views alternative two, a "core-option" modular approach within disciplinary areas, as the most viable long-range approach, and recognizes the need for short-term upgrading of environmental education activities in the current curricular package as being a primary curricular priority, especially in the disciplinary areas of the social sciences, physical sciences, and industrial education.

Finances. The Department of Education recognizes the need for adequate financial support for environmental education activities. The following activity areas are deemed to be those for which serious consideration regarding financing must be made.

- a. Identification of environmentally sensitive components of the current curricular package.
- b. Development of modules of an interdisciplinary nature in order to upgrade present courses.
- c. Facilitation of teacher preparation for environmental education activities through the dissemination of guidelines, information, and consultative services.
- d. Facilitation of student activity in environmental education through recognition of costs of physical facilities, human resources, and transportation associated with out-of-school experiences as a part of the curricular package.
- e. Identification and evaluation of, as well as dissemination of information about, commercially prepared resource materials for environmental education.
- f. Facilitation of local development of program components, teacher and student resource materials, which reflect an Albertan and Canadian content.

It should be noted, that facilitation for the above need not depend upon the budget of the Department of Education. The Department of Education views environmental education as a governmental and social concern bearing implications for several departments of provincial government, sectors of other levels of government, and private industry, as well as society at large. Coordination of program and activity thrust in order to help accomplish effective and efficient use of resources is a major requirement however.

Coordination of Activities in
Environmental Education for Elementary
and Secondary Education

As mentioned above, the responsibility for environmental education should be shared among various governmental and non-governmental agencies. The following description constitutes the position of the Alberta Department of Education with respect to the need for shared but coordinated responsibility insofar as activities related to environmental education in elementary and secondary schools are concerned.

It is clear that the development of programs and approval of materials for use in the schools is the legal responsibility of the Minister of Education, or his designates in the Department of Education or local school boards. It follows that the Department of Education should be among those responsible for the coordination of developmental and facilitative activities in environmental education.

The Department views the coordination linkages which now exist as having the ability to facilitate necessary coordination if these linkages are used appropriately. For the purposes of this paper, comment regarding three environmental education sensitive bodies will serve as examples of how the Department views coordination being accomplished.

Essentially coordination and information exchange, as well as some facilitative activities, such as the distribution of funds and the administration of developmental dissemination, and adoption activities related to environmental education in schools, requires interaction between and among provincial government departments, school systems, and other governmental and non-governmental agencies.

Three bodies in existence which could provide for such coordination are the Department of Education, the Environmental Education Coordinating Committee of the Government of Alberta, and the Public Advisory Committee on Environmental Education, sponsored by the Environmental Conservation Authority.

The Department of Education

The Alberta Department of Education, through its branches, and through its relationship with school boards, has a major role in the facilitation of development, dissemination, and adoption of environmental education programs for the schools of Alberta. Coordination is viewed as a function of the elementary and secondary curriculum boards and their subject area policy committees. In order to facilitate such coordination, the Curriculum Branch of the Department

of Education must designate one or more officials as being responsible for the interdisciplinary field of environmental education. Such an official would be the linking pin between and among curriculum policy committees, would act as the Departmental liaison person for environmental education with school boards and other agencies, and would represent the Department of Education on other coordinating bodies as required. In addition, he would bear the responsibility for initiating necessary developmental activities internal to the Department, and on a shared basis with outside groups or agencies. It is hoped that through the use of such a strategy a coordinated program of activities would be developed.

The Alberta Environmental Education Coordinating Committee

This committee consists of members representing departments of the provincial government who have an interest in environmental education.

The committee would:

1. Prepare recommendations on environmental education goals and strategy.
2. Assess existing related programs.
3. Coordinate the planning and implementation of environmental education programs.
4. Act as a technical advisory committee on environmental education for the Government.

The establishment of such a committee would:

1. Indicate the importance which the Government attaches to environmental education.
2. Provide the authority, continuity, and sense of performance that is difficult to achieve through informal coordination.
3. Help the Government identify what funds are actually being devoted to environmental education.

The Department of Education views the Alberta Environmental Education Coordinating Committee as the potential vehicle for inter-departmental coordination in environmental education subject to the following:

1. The coordinating committee should be organized through the Alberta Office of Program Coordination and chaired by an official of that office.
2. The coordinating committee should be advisory to the Ministers of respective departments with program implementation occurring through the regular activities of such departments.
3. The coordinating committee should be represented on the Public Advisory Committee of the Environmental Conservation Authority by one member named by the coordinating committee.

The structure and guidelines outlined above, if used appropriately, could help to ensure effective, efficient, and economical use of governmental resources directed through a multi-agency approach toward a unified goal. They could also ensure cooperative action while recognizing differences in departmental priorities, guidelines, authority, and degree of involvement.

The Public Advisory Committee of the
Environment Conservation Authority

This committee has served a useful function since its inception in providing for dialogue and action with respect to the field of environmental education in Alberta. The Department of Education views the advisory committee as having great potential for providing an essential linkage between and among various stakeholder groups external to the provincial government, as well as between the government of Alberta, and external agencies.

Other Agencies

While it is not the purpose of this paper to describe the roles of agencies outside of the Department of Education, it should be noted that the position taken by the Department of Education bears implication for others, notably, teacher education institutions, post secondary institutions which receive the products of the formal elementary and secondary system, and certain of the departments of government and social groups. In relation to the above, the following statements of principle apply:

- a. The Minister of Education bears the legal responsibility for the development and implementation of environmental education programs in elementary and secondary schools.
- b. Teachers must be prepared who can function effectively

in an interdisciplinary context, and who have a realistic appreciation of the importance of environmental education activities within the setting of elementary and secondary schooling.

- c. The Department of Education, school boards, and schools should be asked to bear only partial responsibility for the attainment of the goals associated with environmental education: that portion which may be considered to be a legitimate expectation of the process of formal schooling.
- d. A relevant context of concern and activity in matters related to human action in broader society must be in evidence before environmental education in schools can be truly meaningful to students.
- e. Cooperative governmental and non-governmental action is essential with respect to the field of environmental education.

APPENDIX A

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