

S73-145

SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATE

From SENATE COMMITTEE ON UNDERGRADUATE
STUDIES

Subject FACULTY OF EDUCATION - NEW PROGRAM
PROPOSAL - MINOR IN ENVIRONMENTAL
EDUCATION

Date NOVEMBER 15, 1973

MOTION: "That Senate approve, as set forth in S. 73-145, the
proposed Minor in Environmental Education."

S.73-145

SIMON FRASER UNIVERSITY

MEMORANDUM

To SENATEFrom SENATE COMMITTEE ON
UNDERGRADUATE STUDIESSubject FACULTY OF EDUCATION - NEW PROGRAM
PROPOSAL - MINOR IN ENVIRONMENTAL
EDUCATIONDate NOVEMBER 14, 1973.

On the recommendation of the Faculty of Education, the Senate Committee on Undergraduate Studies has approved a new program proposal, - as set forth in SCUS 73-38 - for a Minor in Environmental Education, and recommends approval to Senate.


I. Mugridge

HME:jb

SIMON FRASER UNIVERSITY

SCUS 73-38

AS APPROVED NOV. 13, 1973

MEMORANDUM

Mr. H. Evans, Secretary,	From	Graem Nelson,
Senate Committee on Undergraduate Programs,		Administrative Assistant to the Dean, Faculty of Education,
Subject. FACULTY OF EDUCATION -	Date	29 October 1973.
MINOR IN ENVIRONMENTAL EDUCATION		

At the Faculty of Education meeting held on October 22, 1973, the following motion was passed:-

that the Faculty of Education note and approve changes in the Minor in Environmental Education, which have resulted from consultation with academic departments, and refer the proposal to S.C.U.S. for action.

I have attached the final proposal for consideration by the committee.

Thanks,

Graem Nelson

PROPOSAL FOR A MINOR

TITLE: MINOR IN ENVIRONMENTAL EDUCATION

ORIGINATOR: DR. MILTON MCCLAREN, ASSOCIATE PROFESSOR
FACULTIES OF EDUCATION AND SCIENCE,
ACTING DIRECTOR, DIVISION OF CONTINUING
EDUCATION.

FACULTY: DR. MILTON MCCLAREN AND CONSULTANTS

<u>Action</u>	<u>Date</u>
1. Undergraduate Programs Committee	October 3, 1973, M.S. O'Connell
2. Faculty of Education Executive	October 4, 1973, D.R. Birch
3. Faculty of Education	October 22, 1973, D.R. Birch
4. Senate Committee on Undergraduate Studies	
5. Senate	

FACULTY OF EDUCATION

Proposal for a Specific Minor

1. Title: Minor in Environmental Education
2. Originator: Dr. Milton McClaren, Associate Professor
Faculty of Education, Faculty of Science
(Bio-sciences) and Acting Director, Division
of Continuing Education

3. Faculty and Resource Personnel:

The following list includes SFU faculty who have been involved in planning and teaching courses and special topic offerings in the fields of environmental and outdoor education since the summer of 1971. In addition, it includes the names of consultants and visiting appointees who have been involved specifically in this field since 1971.

Coordinator: Dr. Milton McClaren, Associate Professor:
Bio-sciences/Education
Dr. Glen H. Geen, Associate Professor and Chairman.
Bio-sciences
Dr. A.H. Turnbull, Professor, Bio-sciences, SFU
Dr. T. O'Riordan, Associate Professor, Geography, SFU
Dr. K. Taylor, Science Faculty (Biology), Caribou College
Mr. Brian D. Herrin, Intermediate Consultants, S.D. #39
(Vancouver)
Mr. H.L. Walker, Social Studies Department Head,
Magee Secondary School, Vancouver
Member, B.C.T.F. Environmental Education Task Force
Executive Member, Provincial Social Studies,
PSA
Mr. E. Dowling, Science Department, Howe Sound Secondary
Faculty Associate in Education, SFU 1972-73
Executive Member, Science Teachers' PSA
Mr. Stan King, Architect & Planner, King Graphics Ltd.,
Vancouver
Mr. Ib G. Hansen, Architect
Mr. Ralph L. Shaw, Principal, Bert Edwards School,
Kamloops Chairman, B.C.T.F. Environmental Education
Task Force
Executive Member, B.C. Wildlife Federation
Secretary, McQueen Lake Environmental Studies Center
Committee

4. Purpose: The Purpose of this minor is to develop teachers who have the general competencies of classroom teachers but who have additional skills in the following areas;
 - 1) The design and operation of environmental and outdoor education programs from grades K-12.

- 2) The organization and operation of: day center outdoor education programs, residential outdoor education programs, wilderness outdoor recreation, urban studies, and other interdisciplinary environmental education school programs.

The prime emphasis of the program will be on the development of the fully competent classroom teacher.

The development of this minor should provide a pool of trained manpower to meet the needs of the 21 school districts in B.C. now organizing or operating environmental or outdoor education programs (McClaren, M. and Ramsey, M., 1973).

In addition, it should support the recommendations regarding teacher in-service and pre-service education made by the B.C. Committee on Outdoor Education and B.C.T.F. Environmental Education Task Force, as well as by the Althouse Conference (UNESCO, 1972).

5. Pre-requisites: Completion of the minor in Environmental Education requires the completion of nine semester hours (minimum) of Lower Division courses selected from the following. Students undertaking the Specific Minor in Environmental Education will be expected to have taken or to include introductory courses in both Geography and Biological Sciences.

Biology 003-3:	Ecology and the Population
Biology 102-4:	Introductory Biology
Biology 204-3:	Introduction to Ecology
Kinesiology 042-3:	Man and Movement
Kinesiology 044-3:	Esthetic Forms of Human Movement
Geography 001-3:	The Geography of Technocratic Society
Geography 101-3:	General Geography
Geography 111-3:	Physical Geography
Geography 121-3:	Economic Geography
Geography 141-3:	Social Geography
Economics 101-3:	The Canadian Economy
Economics 200-3:	Principles of Economics I
	Microeconomic Principles
Economics 205-3:	Principles of Economics II
Philosophy 120-3:	Facts and Values
PSA 121-3:	Social Structure
PSA 221-3:	Social Structure of Industrial Societies
Psychology 106-3:	Social Issues

(Substitutions only with permission of the Director of Undergraduate Programs, Faculty of Education).

6. Upper Division Courses Required to Complete the Minor:

Education 462-4: Environmental Education
Education 452-4: Field Work and Case Studies in Environmental Education

In addition to the two courses listed above, students are required to select a minimum of two courses from the following recommended courses.

Education 442-4: Contemporary Issues in World Education
Education 471-4: Curriculum Development: Theory and Application
Education 474-4: Designs for Learning: Social Sciences
Education 476-4: Designs for Learning: Natural Sciences
Education 479-4: Designs for Learning: Physical Education

Biological Sciences 304-3: Animal Ecology
Biological Sciences 306-3: Invertebrate Biology
Biological Sciences 317-3: Insect Biology
Biological Sciences 326-3: Biology of Non-Vascular Plants
Biological Sciences 336-3: Biology of Vascular Plants
Biological Sciences 404-3: Plant Ecology
Biological Sciences 409-3: Field Ecology

Geography 314-3: Climatology I
Geography 315-3: Biogeography I
Geography 322-3: Geography of Primary Activities
Geography 344-3: Geography of Contemporary Industrial Societies
Geography 349-3: Human Microgeography
Geography 421-3: Geography of Resource Development
Geography 431-5: The Landscape in Science, Art, Music and Literature

Kinesiology 320-3: Cultural Aspects of Human Movement

Economics 363-5: Economics of Natural Resources

(Substitutions only with permission of the Director of Undergraduate Programs, Faculty of Education.)

7. New Course(s) Recommended to Strengthen the Minor. (Already approved by Senate).

Education 452-4 Field Work and Case Studies in Environmental Education

This course emphasizes the application of concepts and methods to problems of environmental education program operation under actual school setting conditions.

Pre- or Co-requisite: Education 462-4: Environmental Education.

Value: 4 semester hours. Vector Description: 2-0-4.

8. Field Work

Field Work is integral to Education 452-4 and is a major component of Education 462-4. Special Teaching Placements may be arranged for some students during half of Education 405, where these are appropriate to the students' experience and are recommended by Faculty Associates. A special placement during Education 405 is not a requirement for the Minor.

9. Timetable of Sequence of Course Offerings

Education 462 and 452 will normally be offered as part of Education 404, although scheduling preference will be given to the Summer Session period so that they are available to in-service teachers as well as to Minor students. Education 462-4 may be offered in the Fall and Spring Semesters, if this seems appropriate and student demand warrants it. Education 452, because of its field work requirements, will normally be offered only during the Summer Semester.

10. Present Faculty Resources

Dr. Milton McClaren: Associate Professor, Education and Biological Sciences
Dr. Marvin Wideen: Associate Professor, Education
3-4 Associate Positions in Science Education
3-4 Associate Positions in Social Science
1-2 Associate Positions in Environmental Education, with subsidiary emphasis in other fields.

Other Resources: The Minor has received equipment support from:

- The Department of Biological Science, SFU
- Caribou Regional College, Kamloops
- School District #39, Vancouver
- School District #44, North Vancouver
- School District #24, Kamloops (McQueen Lake Environmental Studies Center).
- Planning Department, Vancouver City
- Department of Education: Province of Ontario
- Department of Recreation and Conservation: British Columbia
- The B.C. Committee on Outdoor Education
- The B.C. Teachers Federation

This support in terms of personnel and logistics is expected to continue with the development of the Minor, as a supplement to resources now available at SFU. We have also proposed to the Provincial Government the addition of 200 acre field study site adjacent to the present SFU campus lands. This application is pending. The field study site is not essential to the operation of the Minor.

11. Number of Students that could be Accomodated:

60 per year maximum.

12. Transcript Notation:

Environ. Educ.

CALENDAR DESCRIPTION: MINOR IN ENVIRONMENTAL EDUCATION

MINOR IN ENVIRONMENTAL EDUCATION

The purpose of this minor is to develop teachers who have the general competency of classroom teachers, but who have additional skills in: the design and operation of environmental and outdoor education programs from kindergarten through Grade 12; and the organization and operation of residential and day center outdoor education programs, wilderness outdoor recreation programs and other interdisciplinary environmental school programs. The prime emphasis of the program will be on the development of the fully competent classroom teacher.

REQUIREMENTS

Students may enrol in the Minor program only with the approval of the Director of Undergraduate Programs, Faculty of Education. Students seeking more information about the Minor should contact the Director of Undergraduate Programs, Faculty of Education.

A. Lower Division Course Pre-requisites

A total of nine semester hours (minimum) of lower division courses to be selected from the following. Students undertaking the Specific Minor in Environmental Education will be expected to have taken or to include introductory courses in both Geography and Biological Sciences.

Biology 003-3:	Ecology and the Population Explosion
Biology 102-4:	Introduction of Biology
Biology 204-3:	Introduction to Ecology
Kinesiology 042-3:	Man and Movement
Kinesiology 044-3:	Esthetic Forms of Human Movement
Geography 001-3:	The Geography of Technocratic Society
Geography 101-3:	General Geography
Geography 111-3:	Physical Geography
Geography 121-3:	Economic Geography
Geography 141-3:	Social Geography
Economics 101-3:	The Canadian Economy
Economics 200-3:	Principles of Economics 1
Economics 205-3:	Microeconomic Principles
Philosophy 120-3:	Facts and Values
PSA 121-3:	Social Structure
PSA 221-3:	Social Structure of Industrial Societies
Psychology 106-3:	Social Issues

(Substitutions only with permission of the Director of Undergraduate Programs, Faculty of Education).

B. Upper Division Course Requirements

Education 462-4: Environmental Education
Education 452-4: Field Work and Case Studies in Environmental Education

In addition to the two courses listed above students are required to select a minimum of two courses from the following:

Education 442-4: Contemporary Issues in World Education
Education 471-4: Curriculum Development: Theory and Application
Education 474-4: Designs for Learning: Social Sciences
Education 476-4: Designs for Learning: Natural Sciences
Education 479-4: Designs for Learning: Physical Education

Biological Sciences 304-3: Animal Ecology
Biological Sciences 306-3: Invertebrate Biology
Biological Sciences 317-3: Insect Biology
Biological Sciences 326-3: Biology of Non-Vascular Plants
Biological Sciences 336-3: Biology of Vascular Plants
Biological Sciences 404-3: Plant Ecology
Biological Sciences 409-3: Field Ecology

Geography 314-3: Climatology I
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Geography 322-3: Geography of Primary Activities
Geography 344-3: Geography of Contemporary Industrial Societies
Geography 349-3: Human Microgeography
Geography 421-3: Geography of Resource Development
Geography 431-5: The Landscape in Science, Art, Music and Literature

Kinesiology 320-3: Cultural Aspects of Human Movement

Economics 363-5: Economics of Natural Resources

(Substitutions only with permission of the Director of Undergraduate Programs, Faculty of Education).

SIMON FRASER UNIVERSITY

MEMORANDUM

To: Dr. Robert C. Brown, Dean
Faculty of Interdisciplinary
Studies
Subject: Environmental Education Programs

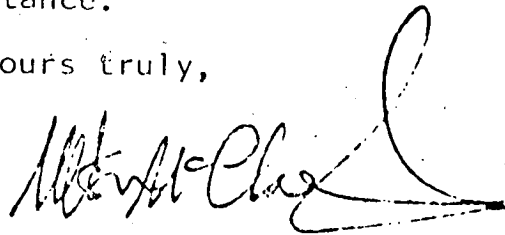
From: Dr. Milton McClaren, A/Director
Division of Continuing Education
Date: June 15, 1973

Dear Bob:

Thanks for your memo of June 11th regarding the Environmental Studies proposal. As I read your memorandum, the answer to Senate's question concerning articulation between the proposed Environmental Education minor and the proposed Environmental Studies program, is that no articulation is possible in the absence of an Environmental Studies program or even of a current proposal for one. I still see the proposal for a minor in Environmental Education as relating clearly to existing course offerings in the Departments of Geography and Biological Sciences in particular, although I would of course welcome the existence of an Environmental Studies program, possibly with Environmental Education as one of its components. In my further report to Senate I will therefore indicate the nature of your response to me and will make any modifications suggested to me by the Departments of Geography, Biological Sciences, etc., with respect to the minor proposal.

Thanks for your assistance.

Yours truly,



Dr. Milton McClaren.

Dr. M. McClaren, a/Director
Division of Continuing Education
Environmental Education
Programs

Robert C. Brown, Dean
Faculty of Interdisciplinary Studies
June 11th, 1973.

Dear Milt,

Please excuse me for not having replied to your request for information concerning the proposed establishment of environmental education programs within this University. You, of course, are aware of your own program in environmental education and I will not embellish upon it. The only other program that has been considered within the University relating to environmental studies has been the proposal prepared by Dr. O'Riordan and Mr. Turnbull. That proposal at the moment is dormant, it having been faced with some severe inter-departmental political considerations which do not allow it to go forward to fruition. Whether or not the faculty members who originally prepared the proposal are willing to commit any additional energies into its eventual implementation is problematic. At the moment Dr. O'Riordan is away from the campus on a leave of absence and he will not return until the Fall Semester 1973.

I am sorry to state therefore, that the potential for the establishment of programs in environmental education at this University is not great. If I can provide you with any further information, do not hesitate to call upon me.

Kind regards,

Robert C. Brown

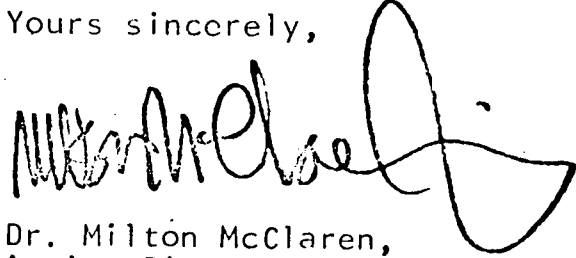
RCB:je

C/o Division of Continuing Education,
Simon Fraser University,
Burnaby 2, B.C.

1973-1973

The Man and Resources program operates on a rigid time schedule and the Provincial Task Forces are required to report by no later than May 1, 1973. It would be appreciated therefore if you could forward your response to me before that date. Thank you for your assistance in this survey.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Milton McClaren', with a large, stylized flourish extending from the end of the name.

Dr. Milton McClaren,
Acting Director,
Division of Continuing Education,
Simon Fraser University.

:mw

SIMON FRASER UNIVERSITY

MEMORANDUM

M. McClaren, A/Director
Continuing Education
Subject Environmental Education Minor

From M.E. Eliot Hurst
Chairman, Geography Department
Date September 28, 1973

The department considered your proposal for a minor in environmental education (within the B.Ed. programme) last June 13th. For some reason our deliberations were not relayed to you.

Based on the May 24th memo, we agree with the prerequisites you mentioned (Geography 001, 101, 211, 221), however 211 and 221 have now been renumbered to 111 and 121 in the new calendar. In addition we have added 141, Cultural Geography (formerly 241). We would also recommend adding to the upper level pool of courses, Geography 322 (Primary Resources) and 421 (Regional Planning).

It was felt that the lower level prerequisites as supplemented were an important minimum to maintain, and that the two upper level courses must have been included by oversight.

As a post meeting note, I should note that Dr. T. O'Riordan has tendered his resignation as of August 31, 1974, and therefore should no longer be listed amongst the resource personnel.

MEEH:bs

M.E. Eliot Hurst

SIMON FRASER UNIVERSITY

MEMORANDUM

Dr. M. McClaren, Acting Director
Division of Continuing Education

From P. Copes, Chairman
Department of Economics and Commerce

Subject: Environmental Education Minor

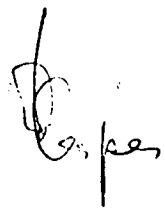
Date: July 9, 1973

I am responding to your memoranda of May 24 and June 22. I do apologize for the tardiness of my reply. I have been out of town for sometime and one of my colleagues whose advice I sought in this matter has also been away.

I feel that the two courses selected from the economics curriculum for the minor in Environmental Education (i.e. Economics 100 and Economics 152) are not particularly relevant. In terms of our current undergraduate offerings, by far the most relevant course is Economics 363-5 (Economics of Natural Resources). However, this course carries two prerequisites, viz. Economics 200 and Economics 205, which constitute a principles sequence. Within the confines of our current curriculum I would suggest that these three courses would make up the best Economics contribution to your minor in Environmental Education. Another course with some relevance would be Economics 101 (The Canadian Economy), which deals with contemporary problems in this country and places some emphasis on growth versus environment controversy.

It may well be that we will develop additional courses within the near future that will be even more relevant to your minor in Environmental Education. However, additional courses are not likely to be developed until the arrival in May of 1974 of a new senior appointee in the Department, Dr. Jack L. Knetsch. Dr. Knetsch is an outstanding authority on environmental and resource economics and is particularly noted for his contributions to recreational economics.

I hope that the above information will be of some help to you. I shall gladly respond to any further enquiries on this matter that you may have.



PC:ag

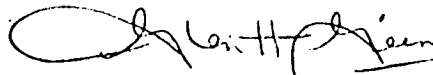
SIMON FRASER UNIVERSITY

MEMORANDUM

To Dr. M. McClaren
Continuing Education
Subject Environmental Education Minor

From Dr. G. H. Geen
Dept. of Biological Sciences
Date June 20, 1973

The comments of the Undergraduate Curriculum Committee of the Department of Biological Sciences on the Environmental Education minor proposal are attached for your consideration. Their comments seem entirely appropriate in my view. However, I would suggest that Biology 316-3, Vertebrate Biology, might also be added to the list of upper levels electives in addition to those in item III of the Turnbull memo.



Glen H. Geen
Chairman.

GHG/ms
Encl.

MEMORANDUM

To Dr. G. H. Geen, Chairman

Department of Biological Sciences

Subject

From Dr. A. L. Turnbull, Chairman

D. U. C. C.

Date June 7, 1973

The Proposal for an Environmental Education Minor was reviewed by the DUCC at a meeting on June 6, 1973. The following suggestions were made:

I. An examination of this proposal reveals.

(a) Prerequisites - A total of 15 courses from 7 departments are listed. Altogether these courses constitute 46 credit hours of which any nine hours constitute an acceptable set of prerequisites.

(b) Required Courses - There are only 2 required courses: Educ. 452-4, and 462-4.

(c) Upper levels electives: A total of 17 courses from 4 departments are listed. Altogether these courses constitute 60 credit hours of which only six hours constitute an acceptable set of electives.

We would like to see a rationale that explains how an undirected selection from such heterogeneous sources can be considered to constitute an identifiable program that provides a coherent body of skills that will satisfy the purposes described in this proposal.

II. We feel that Biology is an essential part of any program that purports to deal with environmental matters. As the program is arranged it is entirely possible that students could complete the program with no biology. We feel that this is an error.

The same comments probably applies to Geography.

We feel that the electives permitted in the prerequisites should be designated so that at least one biology course is required. We suggest the same device be applied to Geography.

III. In the upper levels electives we would include 306-3 Invertebrate Biology, and 317-3, Insect Biology.

SIMON FRASER UNIVERSITY

SCUS 73-10A

MEMORANDUM

Dr. M.S. O'Connell

From: Dr. Milton McClaren, A/Director

Director of Professional Programs
Faculty of Education.

Division of Continuing Education

Subject

Date: March 22, 1973

You have asked me to supply the Senate Committee on Undergraduate Studies with two additional pieces of data with respect to the proposal for a minor in Environmental Education. These are: (a) definition of Environmental Education, and (b) a rationale for Environmental Education.

Environmental Education is a difficult field to define, hence, I can understand those concerns. Environmental Education is a generic term for a group of rather diverse specific educational programs. Included in the genus are: Outdoor and Wilderness Education, Outdoor Recreation, School Adventure Programs (Outward Bound and its derivatives), Urban Studies, Environmental Science, Ecology and in particular Human Ecology. Perhaps the best way to view Environmental Education is to take the approach preferred now by Curriculum groups such as the Group for Environmental Education in the Environmental Studies Project in the U.S., or more recently by the Worth Commission on Education in Alberta, and to view Environmental Education as a theme or strand which is woven through the curriculum from K12 and into adult education. This concept is important, because most curriculum theorists who have written about Environmental Education, including myself, have taken the position that, in fact, Environmental Education must not be seen as another "course" or "unit" in the curriculum because this would be dysfunctional of the attainment of the objectives. Many of the recent B.C. Curricula (e.g. the Elementary Science program; the elementary socials curriculum, and the senior socials curriculum have sections which deal with the human environment, either on a personal, regional, or global basis, but unfortunately most teachers do not know how to deal with topics requiring an interdisciplinary or integrative approach. It is our objective in developing a minor in Environmental Education at S.F.U. to educate teachers who will have expertise in both the field of Environmental Education per se, but more importantly, who will be able to design and operate integrated programs in co-operation with teachers from other disciplines.

cont/d.....

The program which we have created at S.F.U. has been a leader in this field in Canada, and has been externally assessed as such by both Professor J. Passmore of the University of Toronto in his recent survey, Outdoor Education in Canada, and by the Federal Department of the Environment. The approval of this minor, with its single attendant new course is essential to the continuation of this leadership position. I am attaching for the information of the committee the "Rationale Statement" on Environmental Education which was prepared by the B.C.T.F. Environmental Education Task Force and which was accepted by the Curriculum Directors of the Teachers' Federation. I also attach some additional information from other sources. I would greatly appreciate the opportunity to speak to this matter at the next meeting of SCUS.

Yours very truly,

M. McLaren

M
13 Dr. Milton McLaren

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Encl.

"We must meet at least two minimal needs - the need for environmental education of a scope never before undertaken, and the need for a man-centred environmental ethic."

George B. Hartzog, Jr.,
National Park Service.

"It is incumbent on every individual of every age to improve the quality of the environment in which man lives. Education's role is critical. We must provide the leadership in a developing an aware and enlightened citizenry equipped with a basic understanding of environmental problems, the knowledge and skills to solve these problems and a basic motivation and desire to act upon them."

Don Morrison, President
National Education Assoc.

"Education must become the number one priority of the world. It is no longer enough to understand the past or even the present. Man must learn to anticipate direction and change, and teachers must help students acquire knowledge, ethical standards and life styles which recognize man's personal responsibility to qualify environment."

Jim Roady, President 71-72
Association of Classroom
Teachers
National Education Assoc.

A widely used method of teaching environmental education, the strand approach, is advocated by the NPS in its National Environmental Study Area (NESA) program. This method weaves strands of environmental information through regular subjects and incorporates environmental experiences and encounters with the inquiry method to create an integrated education program. The NPS believes that the strand approach will lead students to a good understanding of the uses and abuses of their environment.

"Environmental education is not just a new fad of education or a new fad of citizen concern. It is not just another element added to our curriculum. Environmental education is a fundamental element of education, of community action, and of life. We educators value environmental education because of the educational imperatives it represents. To do otherwise would be shallowness of educational theory and practice. The importance of environmental education can be deduced either through a consideration of the education crisis, or a consideration of the environmental crisis. It is time to map out a program for action, a program that will not be just an instant response to a temporary human need. We need an agenda for action that will help produce a new environmental ethic, a program that will relate education integrally to cardinal virtues recognized by all mankind - peace and love, and environmental quality, without which neither of the other cardinal virtues is attainable."

From: Weidner, E.W. in
"Processes for a Quality
Environment." University
of Wisconsin, Green Bay, 1971.

THE FOLLOWING STATEMENT WAS PREPARED FOR THE
B.C. TEACHERS' FEDERATION TASK FORCE ON
ENVIRONMENTAL EDUCATION.

● In Developing a rationale for environmental education, we are conscious of certain facts. First, the schools are continually called upon to respond to social problems via the development of educational programs. Within recent time alone, schools have been asked to deal with sex and morality issues, drug abuse, ethnic/cultural problems, poverty, and many other contemporary social concerns. Second, the schools do not have infinite human, physical or financial resources. Thus, teachers, school administrators, parents, and students must examine any rationale statement supporting the involvement of the public educational system in environmental education in the light of the many competing demands placed upon schools, and must attempt to determine the position of environmental education in contemporary educational priorities. Moreover, any statement of a rationale must outline the role to be played specifically at the schools in the total process of environmental education. It is with these facts in mind that the Task Force has developed a statement of a rationale for environmental education.

• First, should environmental education be considered to have a high priority for public education? It is now widely recognized by the global community of scholars and increasingly by political agencies throughout the world that environmental problems of very serious magnitude threaten the biosphere. Principal among these problems may be overpopulation and environmental pollution, but certainly environmental problems are not restricted to these two areas. It is not productive to overemphasize the potential "crisis" situation inherent in environmental problems, but it is important to realize that concerted action is necessary now if these problems are to be eliminated and if the process of environmental deterioration is to be reversed.

No matter how environmental problems are viewed, it should be obvious that many of these problems are deeply rooted in contemporary and historical human values and attitudes: these values and attitudes must be understood if they are to be changed. We must also fully appreciate the implications of changing them. The solution to environmental problems does not lie in superficial measures, but will be found only in fundamental alterations in human life style and behavior.

It is, therefore, our contention as a Task Force, that not only are environmental problems both real and grave, but that they can be attacked at least in part through education. It is our opinion that environmental education should have a high priority at all levels of public education.

• In terms of the second item for consideration, namely the specific role of the schools in environmental education, we advance certain proposals: the role of schools in environmental education must not solely be that of transferring or distributing information. Environmental education programs in schools must teach people to examine information critically, to consider alternatives, to make decisions and to evaluate consequences, and to devise and operate effective strategies. Moreover, the first task of environmental education in schools must be the systematic examination of human values and attitudes in regard to man and his total environment. The goal of this process must be the development in the students of an awareness of their own attitudes and values.

It may be that many agencies in society can provide information more effectively than can the schools. Many other forces in society can and do shape and develop values and attitudes, but few, if any other social agencies, can provide people with the tools which they need, in order to cope intelligently with information, and to systematically become aware of their values and of influences upon these values.

• It is our contention, therefore, that school environmental education programs must have certain components if they are to satisfy this rationale. These are:

- a) They must be multi-disciplinary emphasizing the inter-relationships in the environment.
- b) They should focus on contemporary problems, rural and urban, man-made and natural.
- c) They should use formal and informal education processes in a variety of settings (especially those outside the classroom).
- d) They should emphasize the development of attitudes and values as well as the dissemination of information.
- e) They must be concerned with all age groups and should be a continuing process.
- f) Programs of environmental education should themselves present and represent new forms of learning environments so that students may actively explore alternatives, make decisions, and evaluate the consequences of their actions.

It should further be noted that environmental education is a broad term, and will include programs in urban studies, field ecology, outdoor education, nature study, and so on. Environmental education is not a "curricular box" or "cell," but is rather a strand woven through many parts of the existing curriculum. It may also be viewed as a process of developing awareness of the total human environment.

It is our hope that informed citizens will guide and insist upon the development of wise public policy with respect to environmental problems. But it is also hoped that effective programs of environmental education will produce citizens who are prepared to make the personal changes which will be required of us all, if we are to achieve a quality environment.