ESSENTIAL COMPONENTS OF A TEACHER TRAINING COURSE IN OUTDOOR EDUCATION: A SURVEY

by

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ABSTRACT

There is growing concern throughout the world for human survival. Outdoor education in the regular school system has been identified by many educational systems, including that of Ghana, as a potentially effective means of meeting this general concern. In order to introduce outdoor education into the curriculum, the need to train teachers has become apparent to many organizations and individuals.

Much confusion currently exists in the literature on outdoor education; there is a plethora of possible components for inclusion in teacher-training programs. In an attempt to assist the planners of outdoor education programs, particularly in Ghana, this study investigated those aspects of outdoor education which experienced outdoor-educators in North Vancouver School District considered as important components of a teacher preparation course.

The study conducted is a type of descriptive survey, centering on the collection of judgmental data on various components of an outdoor environmental education course. Opinions were obtained through a questionnaire administered to all elementary school teachers in the North Vancouver School District who
could be identified by their principals as having had a one-week, outdoor experience with children at the North Vancouver Outdoor School. The questionnaire was made up of a Likert-scale and a modified form of Q-sort.

The data were collected in June, 1978, and the rate of response was: Schools 94% (N=35); Teachers 67% (N=109). The U.B.C. computer LERTAP and a special Q-analysis program were used to analyse the data.

The results indicated that:

a) The teachers were undecided on what the single most important component of an outdoor training program should be. They considered all 35 components presented to them as important;

b) The respondents suggested about 20 additions to the list of proffered components;

c) The respondents ranked the top ten proffered components, in decreasing order of importance as follows:

1. Ways of making students aware of the impact of humans on their environment;

2. Ways of helping students understand the need to conserve the natural environment;

3. The objectives of outdoor education;

4. Methods of ensuring the safety of the students;

5. A philosophy of outdoor education;

6. Methods of integrating classroom teaching with outdoor education;

7. Carrying out the program in an outdoor setting;

8. How to preserve the outdoor educational site;
9. Teaching strategies specific to outdoor education;

10. Facilitating social interaction amongst children.
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Chapter 1

THE PROBLEM

1.1 INTRODUCTION

Throughout the world, there is growing concern for human survival. Meadows, Meadows, Randers and Behren (1972), and Mesarovic and Pestel (1974), expressed the view that the increasing human population and demands on resources, coupled with dwindling supplies are limiting our choices for the future. Using computers in their projections, they predicted a world catastrophe within the next century unless the problems of a finite earth are acknowledged by mankind and responded to with adequate solutions.

In 1975, the Belgrade Chapter which was unanimously adopted at the United Nations Education workshop expressed the need for a new global ethic.

An ethic which espouses attitudes and behaviour for individuals and societies which are consonant with humanity's place within the biosphere - which recognizes and sensitively responds to the complex and ever-changing relationships between man and nature and between man and man. (Belgrade Charter, 1975, p.57).

The role of schools in developing these concerns has
been considered by many educational institutions, and in recent years, many programs developed as a result. Many problems arose during the implementation stages of outdoor or environmental education programs. Raymond (1974) recognized that the present educational practices are inadequate for meeting environmental problems. Smith, Carlson, Donaldson and Masters observed in 1972 that changing from teaching in a regular school classroom, to teaching field work was extremely difficult. They recommended special training for regular teachers.

In a study conducted by Bateson and Worthing (1976) in British Columbia, it was recommended that the training of both regular teachers and instructors (special teachers who teach only at the outdoor school) was necessary. Miles (1970), Miles (1971), the report on Human Survival and Education (1971), and the interim report of Exemplary Vocational Education Program (1973) identified teacher training as a crucial problem needing attention.

In 1974, Laska reported that an outdoor education teacher had to "muddle through" with little guidance for a suitable curriculum or instructional techniques. Childress (1973) reported that teacher training is an indispensable component of any environmental education program.

Ghana plans to introduce environmental educational into its educational system and has identified the
training of teachers as an essential phase in its implementation. Much confusion currently exists in Ghana and in the literature of outdoor education, because there is such a plethora of possible components for inclusion in teacher-training programs that the total situation appears much confused.

In order to assist the academic planners of courses such as those envisaged by Ghanaian authorities, this study sought the opinions of experienced outdoor educators.

1.2 THE PROBLEM STATEMENT

1.2.1 General Problem

Ghana has experienced environmental problems in recent years. The increase in human population has necessitated expansion in food production, resulting in larger farms. The traditional practice of "shifting cultivation" whereby a farmer cleared any suitable part of a forest for farming for a few years, and then moved into new, fertile forest areas once the soil became depleted, is no longer workable. Farmers unable to find new fertile lands have had to continue to use their old farms. This has resulted in some farmers demanding access to national forest reserves which were set aside for various purposes, such as timber, protection of watersheds, wild life, and weather protection. Others have adopted new agricultural practices, e.g. the use of
commercial fertilizers, without considering their ecological effects.

The reckless use of fishing methods which include chemicals (e.g. D.D.T.) has seriously depleted the supply of fish.

Rivers and lakes, main sources of the domestic water supply, have been polluted by local factories which release their untreated by-products, such as detergents, into them. Conflicts between up-stream and down-stream dwellers have resulted. The future of the wild-life industry has been endangered by the unwise activity of hunters and poachers.

These problems have arisen because the general public does not understand the impact of present modes of life on the ecology of the environment. The public school system has been identified as the most effective tool for influencing public concern for the environment.

To this end, in the new educational structure which will be implemented in 1980, the incorporation of environmental education is being considered. A national council has been established to make the necessary preparations.

The present study will try to gather judgmental data on components which probably ought to be included in the teacher training aspect of the environmental education course for Ghana.
1.2.2 Specific Problems

This study investigated aspects of outdoor education which experienced outdoor-education teachers in North Vancouver School District considered as important components of a teacher-preparation course.

1.3 PURPOSE OF THE STUDY

The goal of the survey was to investigate those aspects of outdoor education which experienced outdoor-educators in North Vancouver School District considered to be important components of a teacher training course in outdoor education. Teachers who undergo this type of education are expected to help their pupils to understand the biophysical environment in which they live, with the intention of reducing its "abuse". This type of education will be offered in what for many of the children will be their final year of formal schooling. Most will subsequently live in rural areas. They will be mainly engaged in small scale farming and fishing in a developing country where improved technological practices are frequently being introduced. Eventually, many of these children will become traditional and/or elected leaders and they will be expected to make important decisions, including environmental ones. Hopefully, we can educate them for these tasks.

This study is in itself part of a larger study to follow which will deal with the development of guide-lines
for a national strategy for implementing environmental education in Ghana.

1.4 OPERATIONAL DEFINITIONS

For a clearer understanding of the text, it was important to define several terms, as used in this study. These terms include:

Abuse: unwise use of a natural resource.

Developing country: a nation whose average per capita income is less than $3,000 a year (ref. Stavenhagen, 1975, p.3).

Elementary school: an educational institution, with grades from kindergarten to seven as in the educational system in British Columbia; i.e. children between the approximate ages of five to 13 years.

Environmental education: any learning which deals with the clarification of values, attitudes and concepts concerned with man's relationship to his culture and biophysical surroundings. (Adapted from Good, 1973).

Outdoor education: any part of a school program conducted outside the school building, excluding regular physical education classes. (Adapted from Brekke, 1977).

Rural areas: any human community which has:

a) Agriculture as a major occupation;
b) A population of less than 2,500 people in the town;
c) A centering of the politico-economic system in the holding of land.

(Adapted from Gould and Kolb, 1964).

1.5 METHOD OF THE STUDY

1.5.1 Nature of the Study

This study constitutes descriptive research. Data for descriptive research is typically collected through mail-questionnaire, interview, or direct observation (ref. Gay, 1976, p.10; and Kerlinger, 1973, p. 412). A mailed-questionnaire was used to collect data, and was given to all elementary school teachers in North Vancouver School District who had spent at least one week in the North Vancouver Outdoor School with children.

The subgroup of the population which was studied included all teachers who could be identified by their principals as having the required one-week, outdoor experience. The size of the subgroup was expected to be somewhat less than the population, due to the selection procedure. Principals might not have known or taken the time to find out which teachers had the necessary qualification and some of the qualified teachers might have declined to participate in the study.

1.5.2 Development of the Questionnaire

Over 100 components, suggested in the literature, were identified. Thirty-five of these components were
selected, modified into a questionnaire and submitted to three judges for suggestions and assessment of the content validity. The questionnaire, made up of two instruments (Likert scale and Q-sort), was then subjected to three pilot runs. Further modifications were made and the final questionnaire (Appendix A) was circulated.

1.5.3 Distribution of the Questionnaire

The appropriate assistant superintendent was contacted for permission to conduct the study in his school district. His authorization and cooperation enabled principals to be contacted for the distribution of the questionnaires.

109 teachers were asked to participate in 33 schools. Principals did the actual distribution of the questionnaire in their schools. In all cases teachers were asked to complete the questionnaire and return it in a self-addressed, pre-stamped envelope.

1.5.4 Return of the Questionnaire

The first set of questionnaires was sent to principals on June 15, 1978. By June 26, 1978, 46 teachers had responded and a follow-up was conducted by telephone. By July 12, 71 of the 109 questionnaires sent out had been returned. This represents a response rate of 65%.
1.6 BACKGROUND INFORMATION

1.6.1 The setting of the Study

The study was carried out in June 1978 in the North Vancouver School District of British Columbia. This district is located on the outskirts of the City of Vancouver; it has 35 elementary schools.

"The North Vancouver School District has the oldest and perhaps the best established residential outdoor education school program in British Columbia". (McClaren and Ramsey, 1972). The outdoor school was established in 1968 and".... has been a pioneer, as far as this Province [British Columbia] is concerned, in the field of outdoor education" (Stables, 1976).

The School District has leased a site at Paradise Valley, located 14 km north of Squamish, approximately 80 km from Vancouver. The outdoor school is well equipped; facilities at the site include: cooking; dispensary; and dining facilities. Students sleep in cabins with indoor plumbing, including hot water. The outdoor environment includes forested areas, open meadows, a variety of plant and animal life, different types of soil, a river and a lake. Indoor facilities include a library, microscopes, other science equipment and indoor games.

Members of the outdoor staff include a permanent outdoor school director, two other teachers who help in the actual instruction, and some non-teaching staff.
The non-teaching staff comprises a secretary, nurse, recreational director, cooks and a maintenance staff for the buildings at the site.

Outdoor educational programs are provided throughout the year for school children mainly in grades six and seven in a five-day, residential experience. There is a wide variety of educational programs, e.g. farm activities like grading eggs, weighing farm animals, approaching and handling animals; orienteering, survival experiences, dancing, live animal trapping, etc. There are twenty-four field studies and units which have been developed or modified by the staff.

In a survey carried out by Stables in 1976, it was reported that "there is strong indication that the project has been meeting the needs of the various groups" - teachers, parents, children and school administrators. Interested high school students in grades 11 and 12, some of whom take community recreation, are given on-site training as counsellors at the outdoor school. The prospective counsellors arrive at the school on Friday evening and leave on Sunday evening. This is an on-going program which has involved 325 students each year since its inception. Suitable students are selected from each group to act as counsellors for groups of elementary school children.
1.6.2 Living Conditions

From six to ten children make up a cabin group, either boys or girls. Each cabin group lives in a separate cabin under the leadership of a trained high-school student as counsellor. The counsellor is there to help the children in everything they do during the week at the outdoor school. Each day each student performs a small share of the duties which are important for the successful operation of the school; e.g. sweep floors, set tables, serve food, clean dishes, carry firewood, clean up the grounds, forecast weather, carry out farm chores and act as host or hostess at meal times.

In addition to the general school duties, it is the responsibility of each child to see that his or her bed area and cabin is well maintained. The nurse conducts a daily inspection of cabins and the cabin with the highest rating is announced at lunch time.

Everyone eats in the central dining hall. School cooks provide good meals; 'seconds' are available at all meals and no student goes hungry - snacks are provided. In the dining hall students sit where they wish. It is recommended, however, that they mix as much as possible and meet and make friends with boys and girls from other classes. Throughout their stay at the camp, each student wears his name tag, making it easier to know and call others by their names.
1.6.3 Daily Program

The outdoor school has a daily schedule (Appendix B). Field studies are scheduled for 9:30 a.m. to 11:45 a.m. and 1:00 p.m. to 3:45 p.m. These studies concentrate on natural science and conservation, and students work in small groups. There is an hour of recreation period following field studies every afternoon which provides archery, fishing, swimming, tracking, canoeing, hiking trips and crafts activities in the spring and fall; snowshoeing, skating, curling and ice-fishing are winter activities.

Each evening there is a varied program which every child attends. The resident staff prepare the nightly programs. During campfire, children sit together as a cabin group with their counsellor, singing and enjoying stunts and skits. Other evening programs include night hikes, square dancing, heritage craft nights, apple roast, and school newspaper preparation. After each evening program they have snacks, return to their cabin with their counsellor and prepare for bed.

Everything at the outdoor school is well organized. A member of the Outdoor School staff visits each class before the children come to the school. They are informed of the suggested personal items they will need and how these should be labelled. They learn the dining hall procedures, and the outdoor-school rules, through a student's handbook.
After the week-long stay at the school, the director visits the children in their regular classrooms and assists the teacher and students with follow-up activities.

1.7 SIGNIFICANCE OF THE STUDY

In 1972, McClaren and Ramsey conducted a survey of outdoor education in British Columbia. They recommended that "There is a clear need to promote the in-service and pre-service education of teachers in the field of environmental education and outdoor recreation" (p.16). In the follow-up study in 1976 by Bateson and Worthing, it was found that the number of outdoor programs in the British Columbia school system had increased. They also found that "Training of competent teachers and instructors for the outdoors becomes an essential consideration".

The findings of this survey should provide some directions in teacher-preparation programs in general. Areas or institutions which are interested in starting outdoor and environmental education programs, such as Ghana, will hopefully have something of relevance for teachers to begin with.

The comments made by teachers may possibly assist educational planners in North Vancouver reflect on the program being offered in their district. The outcomes may help other school districts to design in-service
courses for elementary school teachers. Hopefully, university faculties of education and colleges responsible for pre-service teacher preparation in outdoor education will compare their course components and workshops offerings with the findings and make appropriate changes.

Curriculum developers in outdoor education may be able to identify some problems teachers perceive in organizing outdoor activities, and design more effective curricula.

Most teacher education programs have been developed by experts in the field, with minimal teacher input. Working within the constraints of time and funds, educational planners may revise their teacher-preparation programs to make them more relevant to the problems teachers face. Successful outdoor programs are more likely to occur if the interests of teachers can be sustained by a course which meets their perceived needs. Teachers tend to take greater interest in a course which attempts to provide for their perceived needs; more-successful outdoor programs may result.

1.8 ASSUMPTIONS

It was assumed that:

a) The experience gained at the North Vancouver Outdoor School enabled teachers to hold opinions relevant to the needs of a teacher-training course in outdoor education.
b) The respondents possessed accurate recall and perceptions.

c) The questions were answered accurately and honestly,

d) The computer programs which were used for the analysis were sufficiently adequate and effective to analyse the views expressed.

e) Those who responded to the questionnaire represented a fair reflection of the views of the entire population of outdoor-education teachers in North Vancouver.

f) The manner in which the questions were asked did not affect the validity of the responses.

1.9 LIMITATIONS OF THE STUDY

1.9.1 Scope

a) This was a cross-sectional study of the views of teachers in outdoor education; therefore no trends or tendencies in their views could be predicted. Its accuracy can only be assumed to reflect views at the time when the study was carried out.

b) The definition of outdoor education was relaxed from those given in Chapter two, to include any part of the school program outside the school building, excluding regular physical education classes. Activities like short nature walks, studies in or near the school yard or overnight studies in an outdoor camp were all considered as outdoor education programs.

c) The criterion used for inclusion of a teacher into the population was a one-week experience with children at the North Vancouver Outdoor School. The results reflected the type of outdoor education practiced at the North Vancouver Outdoor School.
1.9.2 Questionnaire

a) Individuals could not be identified for follow-up studies, because of the decision that was made to keep the responses anonymous.

b) Attention is drawn to the rather unusual, forced distribution used to obtain the sorting of items by subjects. It was unusual because only extreme opinions were sought, emphasising extreme points of view.

c) The average expectation of returns from mail surveys seldom exceeds one-third of the mail-out (Hambleton et al., 1970). Generalizability of the results in such cases may be doubtful, and therefore the data must be interpreted with great caution.
Chapter 2

REVIEW OF LITERATURE

2.1 INTRODUCTION

No matter what "new" ideas are put forward, as was pointed out by Shulman (1974), it is later found that these ideas have been reported by someone before and acted upon previous to the reporting. Such is the case with outdoor education. From the stone age many of the educational processes occurred in the out-of-doors. Gradually, educational emphasis (probably as a result of urbanization) became more verbalized and less practical, and learning took place almost exclusively indoors, at a desk. Some educator-philosophers, however, did not overlook the importance of multisensory learning through direct experience.

From this a golden rule for teachers must be derived: everything should as far as possible be placed before the senses. Everything visible should be brought before the organ of sight, everything audible before that of hearing. Odours should be placed before the sense of smell and things that are tasteable and tangible before the sense of taste and touch respectively. If an object can make an impression on several senses at once, it should be brought into contact with several.... (Comenius, 1667, p.95).
In 1780 Heinrich Pestalozzi wrote in 'Not Books but Life Itself':
To arrive at knowledge slowly, by one's own experience, is better than to learn by rote, in a hurry, the facts that other people know, and then glutted with words to lose one's own free, observant and inquisitive ability to study.
(Vandenhazel, 1968, p.22).

...It is a cardinal principle of the newer school of education that the beginning of instruction shall be made with the experience learners already have; that this experience and the capacities that have been developed during it's course provide the starting point for all further learning.
(Dewey, 1938, p. 74).

Sharp (1952) suggested:

The school is not education; we must learn to think of it as merely the headquarters from which learning activities are directed...There are some things, however, that can be learned better in the classroom. It is merely a matter of selection...In a classroom, subjects tend to become artificially separated from the rest of the world. One cannot explore housing conditions in the community without touching history, sociology, health, science and other fields.
(pp. 20-21).

Hammerman and Hammerman (1973) and Voelker (1975) have commented on the need to relate classroom learning to real-life situations. Their view was also expressed by Sharp (1952) in the statement: "Outdoor education forces the issue of integration in the curriculum, to study and experience things in their total relationships - one thing to the other." (pp. 20-21).
Although relationship between man and his environment is a major concern of the seventies, it is not a recent concern. Lowenthal reported that in 1798 Malthus used geometric calculations to predict the over-population of the earth, and Marsh (1864) described the demise of some of earth's most fertile lands because of man's abuse. David Lowenthal, expanding on the views of Malthus and Marsh, suggested:

The same destructive process - extirpation of forests and wildlife, over-grazing, a too ambitious agriculture - recurred wherever civilization had flourished. Long ago fertile and populous, the sterile Sahara, ..., the rock-stream valleys of Provence and Dauphine, were now forlorn monuments to human greed or improvidence. (Lowenthal, 1965, p. XVIII).

In the past, however, man could always move on to new land. Today he is running out of new land to "conquer".

What does the future hold in store for us? Mesarovic and Pestel (1976), attempted to show that mankind is at the turning point. By extrapolation of present trends they predicted world catastrophe in the next century unless mankind makes a drastic change in lifestyle. They stated:

Several critical problem areas have been investigated, in particular the world food shortage, energy crisis, population growth, and the disparity in economic development. Two gaps, steadily widening, appear to be at the heart of mankind's present crises: the gap between man and nature, and the gap between 'North' and 'South', rich and poor. Both gaps must be narrowed if world-shattering
catastrophes are to be avoided; but they can be narrowed only if global 'unity' and earth's 'finiteness' are explicitly recognized.
(1976, p. IX).

The assumption has been made in this study that the concern for the future is well founded. However, even if their catastrophic predictions are wrong, the holistic or environmental attitude will continue to be very valuable to citizens in our diminishing world.

On education, Reischauer states:

The question remains: What can education do about all this? Clearly, not everything. I would be the last to suggest that a world community can be developed through any single master plan, much less a plan limited to the field of education. But education certainly must be part of the effort - a crucial part, in fact. Whatever may be one's analysis of the road ahead for mankind, there can be no doubt that education faces some stupendous tasks.

Margaret Mead describes the educational dilemma as follows:

We must educate people in what nobody knew yesterday and prepare people in our schools for what no one knows yet but which some people must know tomorrow.
(In McInnes & Albrecht, 1975, p.51).

2.2 WHAT IS OUTDOOR ENVIRONMENTAL EDUCATION?

Definitions of outdoor and of environmental education usually given are ambiguous. The two terms augment each other and are sometimes considered equivalent (Hungerford, 1975; Leopold, 1966). They are also used synonymously with such other terms as, conservation

Hammerman and Hammerman (1973) have defined outdoor education as "the utilization of the out-of-doors as a laboratory for learning" and considered it interdisciplinary in character. Donaldson and Donaldson (1968) described outdoor education as "education in, about and for the outdoors." They considered that outdoor education takes place in the outdoors, is about the outdoors and provides a "positive and moral approach" to interacting with the outdoors. Smith, Carlson, Reynold, Donaldson and Masters added to this idea that outdoor education is,

...not a separate discipline with prescribed objectives...it is simply a learning climate offering opportunities for direct laboratory experiences in identifying and resolving real-life problems...
(1972, p.20).

According to Balzer (1971), "a widely acceptable definition is not available at the present time" for environmental education. As mentioned above, it is considered to be synonymous with outdoor education. Good (1973) defines environmental education as learning
which, "...deals with the clarification of values, attitudes and concepts concerned with man's relationship to his culture and biophysical surroundings."

Since World War II, educators have returned to the realization that abstract learning must be aided and reinforced by concrete experiences (ref. Vandenhazel, 1968). The late L.B. Sharp, executive director of the Outdoor Education Centre Association, Carbondale, Illinois, whose writings were the basis of Vandenhazel's definition, did not consider outdoor education to be an area of learning nor a separate discipline with specific objectives. To him "that which can best be learned inside the classroom should be learned there. That which can best be learned in the out-of-doors through direct experience, dealing with native materials and life situations, should there be learned." (Quoted from Vandenhazel, 1968, p.22).

It appeared that the use of the term "outdoor education" by North Vancouver teachers encompassed Good's (1973) definition of "environmental education". Since the study was conducted within that district, the term "outdoor education" was used throughout this report. In Ghana, this same type of education is termed "environmental education:"

2.3 AIMs AND OBJECTIVES OF OUTDOOR EDUCATION

The aims of the San Diego Outdoor Education Program
were representative of many outdoor education programs.

These aims included:

1. To help people relate to a natural environment and understand natural forces;

2. To help each child to become a more complete person, educationally, spiritually and socially;

3. To give children experiences they would not otherwise have had;

4. To help each child become more independent, more mature and more competent in skills and knowledge;

5. To help children view the world in a way of questioning, wondering, discovering and solving problems;

6. To give each child opportunities to work at conservation projects;

7. To live with and get to know other children from different races, economic levels and cultures;

8. To learn about responsibility and how to look after himself.
(Schram, 1969, p.35).

Russell saw similar objectives but added another one: "To help children see adults as learners who have basic human qualities in common with all people" (1973, p. 126). Still another goal of outdoor education was that of stimulating and enhancing classroom learning:

Teachers who have given outdoor education a trial are quite emphatic in saying that it improves the chances of mutual trust and confidence. And they say, further, that when they go back into the indoor classroom with those same students, much of the stiffness has gone out of the educational process, to be replaced by a new kind of eagerness never before seen within those walls.
(Sharp, 1952, p.21).
The objectives and benefits of outdoor education as seen by Orford are: "People of different backgrounds living together in a natural outdoor setting, make 'outdoor education' an ideal medium for meeting such educational objectives as cooperation; individual and group responsibility; written, oral and graphic communications; analyzing and solving problems; knowledge about man and the environment; as well as the development of skills and attitudes for leisure activities." (Orford, 1972, pp. 64, 65).

In 1975 an international workshop was held under the auspices of the United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O.). This workshop resulted in the Belgrade Charter entitled "A Global Framework for Environmental Education." This framework for outdoor education was directed at the general public with particular reference to the formal education of young people and teachers:

Environmental Education: Goal and Objectives. The goal of environmental education is: To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively, toward solutions to current problems, and the prevention of new ones. The objectives of environmental education relate to helping both individuals and groups to: acquire awareness of and knowledge about the environment and its allied problems; to acquire new social attitudes of concern that will motivate active participation; to acquire the skills for solving problems; to be able to evaluate environmental
measures and education programmes in terms of ecological, political, economic, social, aesthetic appropriate action to solve problems.

Guiding Principles.

Environmental Education should:

1. Consider the environment in its totality; natural and man-made, ecological, political, economic, technological, social, legislative, cultural and aesthetic;

2. Be a continuous lifelong process both in-school and out-of-school;

3. Be interdisciplinary in its approach;

4. Emphasize active participation in preventing and solving environmental issues;

5. Examine major environmental issues from a world point of view, while paying due regard to regional differences;

6. Focus on current and future environmental situations;

7. Examine all development and growth from an environmental perspective;

8. Promote the value and necessity of local, national and international cooperation in the solution of environmental problems. (Belgrade Charter, 1975, p.58).

A first step in reaching these goals and objectives appears to be the development of an environmental awareness which may best be achieved through outdoor education which brings the students into direct contact with their environment.

2.4 THE NEED FOR TRAINING TEACHERS

The need to train outdoor education teachers has
been expressed by many organizations and individuals. Some of the international publications (report, workshops, conferences) which have identified teacher training as necessary for providing effective outdoor education programs in schools include the following: the Seminar on Training of Teachers (1970); the Human Survival and Education Report (1971); European Working Conference on Environmental Conservation Education (1972); interim report of the Exemplary Vocational Education Program... (1973); Evaluation Report on Outdoor Education (1974); report of the Workshop on Environmental Science Education (1974); and the Belgrade Charter (1975).

The same general view has been expressed by individuals like Miles (1970, 1971); Smith, Carlson, Donaldson and Masters (1972); Childress (1973); Laska (1974); and Raymond (1974). In British Columbia, the need to train teachers for outdoor education was recommended by McClaren and Ramsey (1972); and Bateson and Worthing (1976). Staples (1976) made the same suggestion in the study he conducted in North Vancouver School District.

2.5 THE SEARCH FOR IMPORTANT COMPONENTS IN A COURSE FOR TRAINING OUTDOOR EDUCATION TEACHERS

Sutman (1972) and Burdin (1972) have both suggested the need to identify relevant components in a teacher-training course in outdoor education. Sutman reported
that "a small amount of ... activity in environmental education is occurring now; yet the state of the art is not clear." He suggested that, "Teacher education cannot and should not wait for the results of a comparable study of on-going environmental education activity", but that "today, we must be concerned enough to stand back and examine what the commitment of teacher education ought to be to environmental education. We as teacher preparators [educators] must pause in order to gain perspective and infuse the educational system with the right energy-catalyst combination..."

Burdin (1972) noted that there were many suggestions of what should be included in outdoor education for training teachers. He stated that "the novice in environmental science, technology and education is flooded by printed matter on environmental problems and education, some produced by persons who have been involved for years in professional endeavours, others less seasoned. The array of materials can easily create frustration and uncertainty as to what actions are defensible, desirable, and feasible. This can lead to indecisive and unproductive or to emotional and haphazard reactions, to our environmental crises. A blending of strong concerns, intelligent public responses, and competent professional input is needed".

Raymond (1974) reported that very little work had been done by way of research in outdoor education.
Few materials were found on research in teacher training, such as Pike (1973) who compared teachers using the inquiry method with those who did not use the method in teaching outdoor education. Brekke (1977) for example, examined the extent to which teachers were prepared for outdoor education in the Yukon area. Part of the study by Bateson and Worthing (1976) was similar to this study in that they tried to identify the specific type of in-service desired by outdoor education teachers in British Columbia, and classified them.

Most of the literature available on teacher education are course components which are in use in institutions which prepare teachers for outdoor education, and suggestions from individuals working in the area of outdoor education.

2.6 REPORTED COURSE COMPONENTS FOR TRAINING TEACHERS IN OUTDOOR EDUCATION

Leyendecker (1966) listed the components of the New Mexico 4-H leadership course which included: working with youth; the philosophy and objectives; teaching techniques; and teaching methods. Yeater (1967) reported that the Carteret outdoor project included: directed-discovery teaching method, field-oriented approach; making audio-visual materials; planning; organization; practical field experiences; and a follow-up in the classroom to review the outdoor work.
Busch (1969) mentioned that the Science Project Related to Upgrading Conservation Education course for teachers included: the inquiry approach; integration of outdoor activities with classroom activities; identification of resources available in teaching outdoor education; and camp program development. The Minneapolis Independent School programs (1970) included teaching methods, and how games were used to introduce some environmental concepts.

Miles (1970, 1971) described the Sedro-Wooley School program which included writing and developing curriculum materials, and how a teacher can involve students in outdoor issues. Planning of field trips was the major theme of the Escambia and Santa Rosa County School, as reported by Montgomery and Smith (1972). The Wisconsin Environmental Education In-service Project (1972) covered the organization of skills and knowledge, goals and objectives, instructional strategies, definition of environmental education, and how to use curriculum materials in the local setting.

The Chadron State College program (1972) included: preparation and conduction of field trips in an outdoor setting; development of outdoor curriculum materials; objectives of outdoor programs; and evaluation procedures used in outdoor education. Roth (1973) reported that the Ohio State University teacher-training
program emphasised the philosophy, objectives and facilities for environmental education.

Holtz (1974) mentioned that the training course for outdoor teachers in Concordia College is organized in an outdoor setting. Students are taught the objectives of outdoor education, and are expected to observe teaching outdoor programs and then develop some activities and materials themselves. Lohart and Allen (1976) reported that the North Florida course included development of teaching materials and skills; definition of conservation; development of programs; and doing the activities in which children will be engaged.

In The University of British Columbia course Ed404 (1978), the following components were identified: the use of demonstrations; use of games and analogies; teaching techniques; use of audio-visual materials; information on sources of teaching materials; evaluation techniques; development of curriculum materials; and practical involvement in trying some of the units available. The Ed380 (1978) course involved objectives, procedures and evaluation of outdoor education work; development of interpersonal relationships; field sampling techniques; selection of outdoor education project materials; logistics of planning field trips; safety methods; and field experiences in practicing outdoor activities (ref. Forster, 1978).
2.7 COMPONENTS SUGGESTED BY INDIVIDUALS FOR TRAINING OUTDOOR EDUCATION TEACHERS

The literature is saturated with components which have been suggested by individuals. In 1964, Brown and Mouser published their book on field methods and techniques and suggested the following components: preparation of field trips; participation in or trying out outdoor activities; development of individual studies; how to record and report findings; making field collections; and techniques for the collection and identification of organisms. Burdin (1970) suggested that outdoor-education teachers should be exposed to: how outdoor education can be integrated with the school curriculum; the sources of information available such as printed materials, media, people and places; teaching methods; and social interaction among people. Hammett (1970) suggested the selection of teachers as counsellors; testing and evaluation; preparation of audio-visual materials; health and safety procedures; and management of food, as components which can help train outdoor teachers.

There were many suggestions made in 1971. In the resource guide for elementary and secondary school teachers, Lundstrom (1971) provided resource agencies and organizations; curriculum programs available, and a bibliography of library materials, which suggested that teachers needed those components for effective teaching of outdoor education. Jungblom (1971) argued
that since many curriculum materials did not fit equally well into other settings and needed adaptation, teacher training courses should include preparation for such activities. The Human Survival and Education Report (1971) also suggested adaptation of curriculum materials, and other components such as the philosophy of outdoor education; development of materials, and how to teach problem-solving curriculum materials. Lines and Bolwell (1971) suggested ways of evaluating children's progress, and ways in which teachers could extend and develop their own knowledge and techniques.

There were many additional suggestions offered in 1972, as shown by the writings of Sutman, Bauer, Burdin, Standley, and Kalla. Sutman suggested that teachers in training be confronted with materials that will place them in problem-oriented situations, where they could gain experience in making both individual decisions and contribute to group discussions. Included in the article were other components such as the methodology (teaching strategies) specific to outdoor education: learning through involvement, and decision making. Bauer suggested that a training course for outdoor education teachers should cover: involvement in the activities which the children would be involved in, and experiencing the translation of ideas into action; teaching methodology; planning and
carrying out field trips and other outdoor activities; preparation of audio-visual materials; and training in the recognition and utilization of resources available in the local community.

Burdin (1972) also suggested that teachers should be involved in and exposed to the activities in which children would be engaged, teaching methods, and school board policies and regulations in outdoor education. Stanley (1972) recommended that teachers in training practice preparation and use of audio-visual materials, while Kalla (1972) suggested how to develop "good" inter-personal relationships with all involved in outdoor programs, i.e., students, teachers and resource persons.

Pike (1973) recommended the use of the inquiry teaching method, class discussion, and the use of films in teaching outdoor education. Pearson and Hayden (1973) in their evaluation report suggested that teachers be trained to write and implement packages in outdoor education.

In 1974 Salee and Rice suggested the use of audio-visual materials in teaching outdoor education. Salee also suggested that teacher's enthusiasm should be increased for studying outdoor problems. Leyh (1974) did not specify components as such, but described in detail how an outdoor education trip was organized. His method was reported as being
successful, and suggested that other teachers try it. The components may only be deduced. They included: logistics of field trips; identification of the interest of students; sharing of responsibilities; collection and identification of field specimens.

Thomsen (1975), Gallagher and others (1975) suggested that teachers should practice the outdoor activities themselves. Gallagher and others (1975) added other components such as: the overview (philosophy); objectives; evaluation methods; and sources of information and help. Kelly (1975) suggested that teachers in training should be taught how the goals of outdoor education can be achieved.

Four articles, produced in 1975, were found on the subject. Eder suggested the inclusion of first-hand practical experience. Corcoran (1976), in a model program, included: development of curriculum materials; small group workshops; use of films; book discussions; and out-of-class writing of curriculum materials. Saveland (1976) suggested curriculum design; teaching methods; exposure to teaching materials and facilities available; teaching media to be used; evaluation procedures; and how to involve and select youth and community personnel in outdoor education. King and Da la Sota (1976) suggested that outdoor teachers should know how to integrate outdoor activities into the existing school curriculum, and the
objectives and use of the local community as a resource.

An in-service survey conducted by Zigarmi, Betz and Jensen (1977) showed that teachers want to interact among themselves and share ideas.

In summary, the literature indicated the desirability of teaching outdoor education as part of the school curriculum. The need for teachers trained in outdoor-educational pedagogy was clearly indicated. The range of suggested components to be included in the training of teachers was broad (in excess of 100). These components could be grouped into three categories; the understanding of concepts, teaching methods, and necessary skills. There was no apparent prioritization of the topics within any of these groups.
Chapter 3

METHOD OF STUDY

3.1 INTRODUCTION

The purpose of the study was to investigate those aspects of outdoor education which experienced outdoor-educators in North Vancouver School District considered to be important components of a teacher-training course in outdoor education. It was decided to develop and administer a questionnaire to elementary school teachers in North Vancouver School District who had had at least one week experience in the teaching of outdoor education.

The survey was planned to determine principally the following:

a) The extent to which teachers' agreed with the incorporation of each of a pool of possible components into any teacher-training program in outdoor education;

b) Which components they considered to be most important and least important from the pool of topic components;

c) Any topic components which they considered to be important apart from those provided;

d) Any comments teachers may have regarding the inclusion and exclusion of components.
3.2 DEVELOPMENT OF THE QUESTIONNAIRE

3.2.1 Preliminary Preparation of the Questionnaire

Because no satisfactory questionnaire could be found in the literature, an appropriate one had to be developed and refined. Over 100 components suggested in the literature were identified. The sources included the Journal of Environmental Education, A Study of Outdoor Education in British Columbia, Educational Research Information Centre, Programs in Environmental Education and teacher training programs in outdoor and environmental education at U.B.C. (e.g. U.B.C. course, Ed. 380, ref. Forster 1978).

Components which seemed to be applicable or suitable for environmental education in the Ghanaian situation were selected. (Components related to recreational activities, for example, were specifically dropped, since this aspect would not be acceptable in the Ghanaian situation.) Final selection of any one component was made upon the mutual agreement of the researcher and his research advisors.

The questionnaire was submitted to four judges who are familiar with teacher training programs in outdoor and environmental education. Their judgements and approval established the content validity of the questionnaire.
3.2.2 Pilot Studies

The questionnaire was piloted three times. These pilot studies improved the questionnaire by adding to the clarity and precision of individual items.

3.2.2.1 First Pilot Study

With the permission and cooperation of one of the U.B.C. instructors, a third year, regular education class of 16 students was used. The purpose of this study was to determine the approximate time needed to complete the questionnaire, any word ambiguities and/or misunderstandings. Each student was given a copy of the questionnaire and asked to respond to it in the presence of the researcher. These subjects were invited to write comments about individual items and to suggest ways of improving the questionnaire.

After the subjects had responded to the questionnaire, comments and suggestions were discussed with the whole class. The questionnaires were collected and analysed to check on the reliability (internal consistency) and suitability of the items, using the LERTAP computer program.

3.2.2.2 Second Pilot Study

It was necessary to conduct another pilot study since the first pilot group did not have formal training or exposure to the teaching of outdoor education. The
second pilot study was conducted on ten, fourth-year education students in the Faculty of Education who had just completed a course in the teaching of outdoor education (Ed. 380). The questionnaire was administered by a teaching assistant who knew the students; provision was made for comments and suggestions. All questionnaires were returned and analysed as before.

3.2.2.3 Third Pilot Study

The purpose of the third pilot study was to try the questionnaire on people who were more representative of the actual target population. That third pilot group was made up of about 30 experienced outdoor education teachers in British Columbia who attended a week-end workshop. The questionnaires were sent to the teachers by mail, through the Vancouver Environment Education office, together with covering letters (Appendix C) and self-addressed, pre-paid envelopes; provision was made for suggestions and comments. Twenty-one of the 30 questionnaires (70%) were returned and analysed as above.

3.2.3 Final Preparation of the Questionnaire

Following the suggestions and comments obtained from the pilot studies and consultants the questionnaire was finally revised. Some items were modified.

The final three-paged questionnaire was made up of a Likert-scale component and a modified form of Q-sort (Appendix A). Provision was made for an additional item
and comments to be added by the respondent. The questionnaires were printed and packed. Each packet consisted of a copy of the questionnaire; a return, self-addressed stamped envelope and a covering letter. The covering letter explained to the teacher the purpose of the study and assured him/her of complete anonymity (see Appendix D).

3.3 DISTRIBUTION OF THE QUESTIONNAIRES

3.3.1 Communication with School Authorities

In May 1978, the appropriate assistant superintendent was contacted for permission to conduct the study in his school district, in accordance with district policy. His authorization and cooperation enabled schools to be contacted.

With the help of a list of names and mailing addresses of school staff members, principals were contacted by letter (Appendix E) to seek their support for the distribution of the questionnaires. Forms were enclosed in those letters to principals on which they were asked to provide the number of teachers in their schools who belonged to the population. Self-addressed business reply envelopes were also included.

3.3.2 Mailing the Questionnaires

The first set of questionnaires was sent to twelve principals who had responded by June 15, 1978.
Principals who had not responded by then were contacted by telephone and a supply of questionnaire packages were sent to them. Principals were asked to distribute them to teachers who qualified as members of the population. Two schools declined the request on the grounds that their teachers were too busy; those schools were omitted from the study.

3.4 RETURN OF THE QUESTIONNAIRES

All questionnaires were to be returned to the researcher by mail using the self-addressed envelopes. By June 26, 1978 forty-six of the 109 teachers had responded.

Follow-up letters were sent to all principals cooperating in the study (Appendix F). Because of the importance attached to this letter factors such as the wording of the letter (ref. Charach, 1975), the time (ref. Droege and Crambert, 1965; Robin, 1965 and Dillman, 1975) and kind of postage (ref. Champion and Seer, 1969; and Veiga 1974) had to be considered. The letters were personalized to individual cooperating principals and sent by first class mail, and timed to arrive in the schools on the second day of the summer vacation. It was expected that with potentially less work, those principals who might not have distributed their questionnaires and those teachers who had not responded would have the time to do so then. By
July 12, 1978, 71 of the 109 questionnaires sent out had been returned.

3.5 ESTIMATION OF RESPONSE RATE

3.5.1 Schools

There are 35 elementary schools in the North Vancouver School District. All the principals of these schools were asked to distribute the questionnaires. Thirty-three of the principals agreed to do it. This represents a response rate of 94% of the elementary schools in the district.

3.5.2 Teachers

There were 109 teachers who were identified by principals in the 33 schools. Teachers in the two other schools where principals did not agree to distribute the questionnaire were not contacted. Seventy-three actually took part in the study, showing a response rate of 66.9%.

3.6 ANALYSIS OF THE RESPONSES

For each questionnaire received, the responses on the Likert-scale items were checked against the responses on the Q-sort to find out if the ratings were reasonably similar. This was done in order to eliminate the responses of subjects who were either inconsistent or did not take the questionnaire seriously.
It was felt that the four most important items and the four least important items selected by the subjects should tally with the high rated items and low rated items respectively on the Likert scale for that same person. Where there was lack of agreement in the responses the questionnaire was rejected from further analysis. Only one questionnaire was rejected.

In two of the questionnaires which were returned, the subjects had not responded to the Q-sort. These responses were analysed using the LERTAP and deleted in the Q-analysis. The LERTAP computer program is used for item and test analysis in survey research. For example, it provides characteristics of each item such as the mean response, the number and percentage of responses, and the distribution of responses across the scale. The Q-analysis provides more information about the population. Persons are variables and items observations in this analysis. It shows the various types of viewpoints expressed by the people. An analysis of these viewpoints shows what the various types considered very important, what was of little importance and what was in between.

The additional items suggested for inclusion in such a course and other comments were grouped to find out if any information could be obtained to support, reject or elucidate some of the views presented.
The responses on the Likert-type items were scored 5, 4, 3, 2 and 1 for great importance, much importance, some importance, little importance and no importance, respectively. Where there was no response for an item, no score was assigned to that item for that particular person.

Responses on the Q-sort part of the questionnaire were scores 9, 8, 7 and 6 most important, second most important, third most important and fourth most important choices, respectively. All remaining items were scored 5 each. The pre-determined frequency distribution of items in each category is presented in Table 1.

Where individuals had chosen two items for a rating, both items were each assigned the score for that rating. On the other hand where individuals had not responded to some scale, the score for that rating was not assigned to any item.

The LERTAP computer program was used to analyse the Likert-scale responses. The mean of the scores on each item was used to indicate the relative importance which the subjects placed on that item as a component in a course for the preparation of outdoor education teachers.

The Hoyt's reliability index for the questionnaire was 0.90. This was calculated using the LERTAP computer program. This program uses the Hoyt method, which is
based on the internal consistency approach to reliability measurement.

Table 1
Pre-determined Frequency Distribution of Items in each Score Category

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<th>Scores</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>9</th>
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<td>27</td>
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Chapter 4

RESULTS OF THE STUDY

4.1 INTRODUCTION

The purpose of this study was to investigate those aspects of outdoor education which experienced outdoor-educators in North Vancouver School District considered as important components of a teacher-training course in outdoor education. In this chapter only the main results are presented. Specific details about the data can be found in the Appendices.

In this chapter the results are presented under headings which correspond to the two types of analyses carried out - analysis of Likert scale responses and Q-analysis of Q-sort responses.

As mentioned in Chapter 3, responses indicating great importance (G.I.), much important (M.I.), some importance (S.I.), little importance (L.I.) and no importance (N.I.) on the Likert scale items were scored 5, 4, 3, 2 and 1 respectively. Consequently, if a component has a mean score of 4.00, respondents generally agreed that it was of much importance in a
training course for outdoor-education teachers.

The organization of the results on the Likert items in the Appendix follow the same order in which the components were presented in the item of the instrument. The serial number attached to each item in the instrument is provided for both analyses. The tables contain the frequency (f) and percentage (%) response as well as the total number of subjects responding to each item.

In the Q-analysis Alphabets (A-R) are used to identify the different profiles of responses while serial numbers are used to identify both the items (1-35) of the Q-sort and the respondents (1-69).

In addition to responding to the two instruments, 39 of the teachers suggested other items and/or wrote comments which varied in length from one or two sentences to one full page. All of these suggestions and comments are grouped together and presented in Appendix G and H.

4.2 RESULTS

4.2.1 Analysis of Likert scale Item Responses

4.2.1.1 Most Important Components

The ten most important components as indicated by the mean scores are presented as Table 2. The summary of the responses of teachers to these items is presented as Appendix I. The results show that ways of making
Table 2

The Ten Most Important Components*

<table>
<thead>
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<th>COMPONENT</th>
<th>Mean Score</th>
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</tr>
<tr>
<td>2. Ways of helping students understand the need to conserve the natural environment</td>
<td>4.47</td>
</tr>
<tr>
<td>3. The aims (objectives) of outdoor education</td>
<td>4.35</td>
</tr>
<tr>
<td>4. Methods of ensuring the safety of the students</td>
<td>4.35</td>
</tr>
<tr>
<td>5. A philosophy of outdoor education</td>
<td>4.30</td>
</tr>
<tr>
<td>6. Methods of integrating classroom teaching with outdoor education</td>
<td>4.27</td>
</tr>
<tr>
<td>7. Carrying out the program in an outdoor setting</td>
<td>4.27</td>
</tr>
<tr>
<td>8. How to preserve (keep for a long time) the outdoor education site</td>
<td>4.23</td>
</tr>
<tr>
<td>9. Teaching strategies specific to outdoor education</td>
<td>4.21</td>
</tr>
<tr>
<td>10. Facilitating social interaction amongst children</td>
<td>4.16</td>
</tr>
</tbody>
</table>

*Ordered in decreasing importance.
students aware of the impact of humans on their environment, and ways of helping students understand the need to conserve the natural environment were the two most important components. The aims (objectives) of outdoor education, methods of ensuring the safety of the students and a philosophy of outdoor education were the next three components which were selected by the teachers. The methods of integrating classroom teaching with outdoor education, carrying out the program in an outdoor setting, and how to preserve (keep for a long time) the outdoor setting were the next three selected components. The last two most important components were teaching strategies specific to outdoor education, and facilitating social interaction amongst children.

The mean scores for all these ten components ranged between 4.48 and 4.16 which indicated that teachers generally considered those items to be of much importance for any outdoor education course for teachers.

4.2.1.2 Least Important Components

The ten least important components are presented in Table 3. The data shows that of the 35 components which were presented to the teachers, the preparation of audio-visual materials (e.g. films, recordings) for use in teaching outdoor education, a study of human
Table 3
The Ten Least Important Components*

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparation of audio-visual materials (e.g. films, recordings) for use in teaching outdoor education</td>
<td>3.18</td>
</tr>
<tr>
<td>2. A study of human nutrition</td>
<td>3.20</td>
</tr>
<tr>
<td>3. School board policy on outdoor education</td>
<td>3.28</td>
</tr>
<tr>
<td>4. The importance of a balanced and attractive diet</td>
<td>3.31</td>
</tr>
<tr>
<td>5. School board regulations on outdoor education</td>
<td>3.32</td>
</tr>
<tr>
<td>6. Adapting prepared outdoor materials (e.g. commercial) to local conditions</td>
<td>3.56</td>
</tr>
<tr>
<td>7. Methods of handling disciplinary problems in the outdoors</td>
<td>3.58</td>
</tr>
<tr>
<td>8. Developing inter-personal relationships (working with each other) amongst teachers</td>
<td>3.73</td>
</tr>
<tr>
<td>9. Criteria for selecting assistance (e.g. teachers, parents, adults) for outdoor education programs</td>
<td>3.83</td>
</tr>
<tr>
<td>10. The legal liabilities in the outdoors</td>
<td>3.87</td>
</tr>
</tbody>
</table>

*Ordered in increasing importance.
nutrition, school board policy on outdoor education, the importance of a balanced and attractive diet, and school board regulations on outdoor education were considered to be the five least important items. Other components which were ranked low in priority as shown in Table 3 were: adapting prepared outdoor materials (e.g. commercial) to local conditions, methods of handling disciplinary problems in the outdoors, developing inter-personal relationships (working with each other) amongst teachers, criteria for selecting assistance (e.g. teachers, parents, adults) for outdoor education programs, and the legal liabilities in the outdoors.

The mean scores for these ten least important items, as presented in Table 3, ranged from 8.18 to 3.87.

4.2.1.3 Interpretation of the Results

The results show that teachers in the North Vancouver school district favoured items related to "the impact of humans and the need to conserve the environment, the aims and philosophy of outdoor education, the methods of ensuring safety and facilitating social interaction amongst children, how outdoor education can be taught in the school setting, and how the study sites can be preserved".
Even though the least important components from the list were identified, the mean scores for these items indicated that the respondents generally considered that these lower-rated components were also of some importance in a general training course for teachers in outdoor education.

The LERTAP analysis revealed that the highest and lowest scores which were obtained in the 'test' were 173 and 107 respectively, with a mean score of 138. The comparison of these figures with the highest (175) and lowest (35) an individual could possibly obtain depending on his attitude to the whole list, reveals that the population was generally in support of the components presented to them.

4.2.2 Analysis of the Q-Sort Responses

4.2.2.1 Type of Views Expressed

The selection matrix obtained in the Q-analysis showed that there were 18 factors (different patterns of profiles of sorting the items) displayed by the respondents. (This is presented as Appendix D). The main views were expressed by Types A, B, C, E and F (made up of 15, 10, 7, 5 and 5 members respectively).

Table 4 shows that members belonging to Type A can be characterized as having strong concerns for establishing and implementing the goals of outdoor education and a weaker concern for items related to
Table 4

Main Points of Views Expressed by the Population

<table>
<thead>
<tr>
<th>TYPE</th>
<th>CHARACTERIZATION</th>
<th>BASIS (Items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><strong>Most important:</strong> The philosophy and aims of outdoor education, and how these can be implemented</td>
<td>4,7,11,29</td>
</tr>
<tr>
<td></td>
<td><strong>Least important:</strong> Components related to student feeding and how outdoor teaching materials can be prepared or adapted</td>
<td>19,20,27,28</td>
</tr>
<tr>
<td>B</td>
<td><strong>Most important:</strong> Components related to school board policy and regulations, legal liabilities, and preparation of teaching materials</td>
<td>21,22,24,28</td>
</tr>
<tr>
<td></td>
<td><strong>Least important:</strong> Components on the ecology of the environment, social interaction amongst children and the philosophy of the program</td>
<td>4,5,11,30</td>
</tr>
<tr>
<td>C</td>
<td><strong>Most important:</strong> Selection and use of persons, and legal liabilities outdoors</td>
<td>1,2,3,24</td>
</tr>
<tr>
<td></td>
<td><strong>Least important:</strong> Field trip conduction, sources of information and how the program can be integrated into classroom teaching to make students understand the need to conserve environment</td>
<td>10,11,17,25</td>
</tr>
<tr>
<td>E</td>
<td><strong>Most important:</strong> The philosophy, environmental ecology, and how such programs can be evaluated</td>
<td>4,5,9,11</td>
</tr>
<tr>
<td></td>
<td><strong>Least important:</strong> Components related to human nutrition, selecting assistance on how to prepare, and adapt materials to local conditions</td>
<td>1,19,27,28</td>
</tr>
<tr>
<td>F</td>
<td><strong>Most important:</strong> Logistics, philosophy, field sampling techniques and preparation of audio-visual materials</td>
<td>4,8,12,28</td>
</tr>
<tr>
<td></td>
<td><strong>Least important:</strong> The ecology of the environment, and how this can be taught in a classroom setting</td>
<td>5,10,11,29</td>
</tr>
</tbody>
</table>
feeding, preparation and adaptation of outdoor materials.

For Type B, components related to school board policy and regulations, legal liabilities and the preparation of teaching materials were considered to be most important. Components on environmental ecology, social interaction amongst children and philosophy were ranked as being of least importance.

"Selection and use of persons and legal liabilities" was chosen as being the most important by members in Type C, while conducting of field trips, sources of information and how the program can be integrated into classroom teaching to enable students to understand the need to conserve the environment were considered to be of least importance.

Type E can be characterized by having strong concerns for understanding the philosophy, environmental ecology and evaluation, and weak concerns for components related to human nutrition, criteria for selecting assistance, preparation and adaptation of materials to local conditions.

For Type F, the logistics, philosophy, field sampling techniques and preparation of audio-visual materials were considered to be the most important components. Teaching strategies in environmental ecology and how these can be integrated into classroom teaching were ranked as being least important by the
4.2.2.2 Interpretation of the Q-Results

The results of the Q-sort indicate that the subjects varied considerably in opinion in selecting the most important and least important components. For example, there were as many as 18 distinctly different views expressed, and of the five main types of views identified, six components (1, 4, 5, 28 and 29) which were selected as being most important by some groups were selected by others as being least important. There was no component agreed upon, by all five major types as being most important or least important.

Twelve components (6, 13, 14, 15, 16, 18, 26, 31, 32, 33, 34 and 35) could be identified as the consensus ones in that all members in the five major types (groups) agreed that none of them was considered as being most important or least important by the five major types.
5.1 CONCLUSIONS

a) Teachers experienced in outdoor education were undecided on what the single most important component of an outdoor education training program should be. The teachers considered all 35 components presented to them as important in a general outdoor education training course for teachers.

Even the least important item in the whole list was indicated as being of some importance in the training course. This suggests that all these items warrant consideration in the design of a general course in outdoor education for teachers.

b) The comments suggested by the respondents indicated that the list of components provided was not complete enough. Other components such as those dealing with lesson plans, recreational activities, and survival techniques were added.

c) The ten most important components in a general outdoor education training course, in order of importance, were:
1. Ways of making students aware of the impact of humans on their environment;
2. Ways of helping students understand the need to conserve the natural environment;
3. The objectives of outdoor education;
4. Methods of ensuring the safety of the students;
5. A philosophy of outdoor education;
6. Methods of integrating classroom teaching with outdoor education;
7. Carrying out the program in an outdoor setting;
8. How to preserve and maintain the outdoor educational site;
9. Teaching strategies specific to outdoor education;
10. Facilitating social interaction amongst children.

Since the respondents felt that all of the items were important, then, if a limited course must be designed, it should probably include the ten top-rated components.

5.2 LIMITATIONS OF THE CONCLUSIONS

5.2.1 Generalizability to the Whole Population

The conclusions were considered with due regard to the rate of response. Only 66.9% of the teachers contacted responded. The lack of response in the remaining 33.1% raised a number of questions, e.g. was the sample self-selective (i.e. did only those teachers who were in favour of outdoor education respond)?

The data was unfortunately collected at a time of year when teachers were particularly busy; a low response
rate could reasonably be attributed to this fact.
Since the average returns from mail questionnaires exceeded one-third of the mail-out (ref. Hambleton et al., 1970) a response rate of 66.9% seemed reasonably acceptable under the circumstances, and the above conclusions are very likely applicable to the entire population in North Vancouver.

5.2.2 Applicability to the Ghanaian Situation

This study was carried out in North Vancouver School District, with a view to possibly applying the results to Ghana, and perhaps other areas. The situation in North Vancouver is different from that in Ghana in many respects, e.g. culturally, climatically, economically, etc. which obviously limits the applicability of the conclusions.

However, education in Ghana and North Vancouver is essentially the same in teacher-training and administration. The educational systems in both areas have a common history inherited from Great Britain. The methods of teaching, teaching materials, and the educational experiences of teachers are basically the same. In Ghana there is already a Canadian influence within the educational system, due to the fact that many Ghanaians have been educated in Canada and Canadian educators have taught in Ghana. Most teachers from countries other than Canada and Great Britain are
expected to undergo a training program prior to teaching in Ghana. Because of the similarities within the two systems, no such additional training is required of Canadians.

It seems reasonable to expect that teachers in Ghana would respond in a similar way to the questionnaire, hence the conclusions of the study have a high probability of being applicable in the Ghanaian teacher-training situation.

5.3 RECOMMENDATIONS FOR FURTHER RESEARCH

As a result of this study to determine important components for a teacher-training program in outdoor education for Ghanaian teachers, the following additional studies are suggested.

1) Replicate the study in the Ghanaian situation.

2) Expand the list of components to include more items such as those on survival techniques, recreational activities, lesson plans and farm studies.

3) Find out if the selection of items was influenced by any external factors such as sex, teaching experience, type of school pupils and grade level of pupils.

4) It is also suggested that course organizers conduct periodic studies to assess the felt-needs of teachers regarding the content of a course of this nature. Perhaps a thorough needs assessment of the true consumers should be done in this area.
BIBLIOGRAPHY


Gay, L.R. *Educational Research: Competencies for Analysis and Application*. Columbus; Charles E. Merrill, 1976.


APPENDIX A

QUESTIONNAIRE:
IMPORTANT COMPONENTS REQUIRED FOR A TEACHER-TRAINING
PROGRAM IN OUTDOOR EDUCATION
IMPORTANT COMPONENTS REQUIRED OF A
TEACHER-TRAINING PROGRAM IN OUTDOOR EDUCATION

This questionnaire is aimed at assessing your opinion about items which you consider to be important components of any teacher-training program in outdoor education.

For the purpose of this study, outdoor education is defined as any part of a school program outside the school building, excluding regular physical education classes. Outdoor education activities could include short nature walks, studies in or near the school yard or overnight studies in an outdoor camp.

Please indicate to what extent you agree with each of the items by checking the relevant space beside the items.

The design of a course in outdoor education for teachers should include:

<table>
<thead>
<tr>
<th>Great Importance</th>
<th>Much Importance</th>
<th>Some Importance</th>
<th>Little Importance</th>
<th>No Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Criteria for selecting assistance (e.g. teachers, parents, adults) for outdoor education programs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Criteria for selecting senior students (counsellors) for outdoor education programs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How to use resource persons in outdoor education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ways of making students aware of the impact of humans on their environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The justification (rationale value, importance) of outdoor education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The aims (objectives) of outdoor education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The logistics (e.g. budgeting, transportation, food) of outdoor education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The design of a course in outdoor education for teachers should include:

10. Methods of integrating classroom teaching with outdoor education.
11. Ways of helping students understand the need to conserve the natural environment.
12. Field-sampling techniques (e.g. collecting, identification of organisms).
13. Guidelines for choosing suitable outdoor activities.
14. Methods of ensuring the safety of the student.
15. A course in first-aid.
16. How to prepare for field trips.
17. How to conduct a field trip on site.
18. How to relate outdoor education to everyday life.
19. Adapting prepared outdoor materials (e.g. commercial) to local conditions.
20. The importance of a balanced and attractive diet.
21. School board regulations on outdoor education.
22. School board policy on outdoor education.
23. How to preserve (keep for a long time) the outdoor education site.
24. The legal liabilities in the outdoors.
The design of a course in outdoor education for teachers should include:

25. The various sources of information (e.g. outdoor teaching materials) on outdoor education.

26. How to follow-up outdoor activities in the classroom.

27. A study of human nutrition.

28. Preparation of audio-visual materials (e.g. film, recordings) for use in teaching outdoor education.

29. Teaching strategies specific to outdoor education.

30. Facilitating social interaction amongst children.

31. Developing inter-personal relationships (working with each other) amongst teachers.

32. Developing outdoor education programs.

33. Doing the same outdoor activities children will be engaged in.

34. Carrying out the program in an outdoor setting.

35. Methods of handling disciplinary problems in the outdoors.

Examine the list of 35 items and add any one important item you think has been excluded. Your addition becomes No. 36). Write the item in the space provided below.

36.

Go back and look at the whole list (including what you added), and select the most important one in the whole list. Put the number of the most important item on top of the line provided beside. Do likewise for your
2nd, 3rd and 4th most important choices.

- Most important
- Second most important
- Third most important
- Fourth most important

Do likewise for the four least important items.

- Least important
- Second least important
- Third least important
- Fourth least important

Comments (please use reverse if necessary)

Thank you for your cooperation.
APPENDIX B

Daily Schedule At The
North Vancouver Outdoor School

7:00 a.m.  Rise and shine
7:30    Duties
8:00    Breakfast
9:00    Clean-up - duties + free time
9:30    Field Study I
11:45   Fetch 'n' carry
12:00   Lunch
1:00    Field Study II
1:45    Recreation
5:00    Duties
5:30    Supper
6:30    Daily follow-up
7:30    Evening program
8:30    Snack
9:00    Cabins
9:30    Lights out (Grade 6 & 7)
10:30   Lights out (Grade 8 & 9)
APPENDIX C

COVER LETTER TO OUTDOOR EDUCATION TEACHERS

Pilot Study #3
April 20, 1978

Dear

We are trying to find out what you as an outdoor educator would like to see in a teacher training course for outdoor education.

One of our graduate students, Joseph Tufuor, has put together the enclosed check list. Would you be kind enough to fill this out so we can have your guidance to improve our programs.

Thank you very much.

Sincerely,

C.J. Anastasiou,
Director

CJA/pwg
encl.
APPENDIX D

COVER LETTER TO TEACHERS
Dear Teacher:

The goal of this study is to identify those topics which experienced outdoor-education teachers consider as essential components of any program to prepare teachers of outdoor education. These topics will be catalogued for possible future use in the design of a course of study in outdoor education to be included in the preparation of elementary school teachers in Ghana.

Most of the children in Ghana will complete their formal education at the end of grade ten. Approximately 80% of them will subsequently be engaged in small-scale farming and fishing in rural areas of a developing country into which improved technology is gradually being introduced. Some of these young adults will eventually become hereditary and/or elected leaders in their communities and they will be expected to make important decisions, including environmental ones. Hopefully, during their schooling we can give them some understanding of their biophysical environment with the intention of reducing its abuse.

Please complete the enclosed questionnaire (15 minutes, or less) and return it to me in the stamped envelope. You can be assured that all information obtained will be used only in research and held in the strictest confidence. You or your school will not be identified in any way when the findings are published.

The response of every teacher who receives this questionnaire is urgently needed. I cannot proceed with my study without the opinion of experienced outdoor educators.

Thank you for your consideration.

Joseph K. Tufuor (student)
APPENDIX E

COVER LETTER TO PRINCIPALS
Dear Principal:

I am a Master's degree student from Ghana, enrolled in science education at the University of British Columbia.

I am endeavoring to assess the opinions of experienced outdoor education teachers regarding the items they feel to be of value in any teacher-training program in outdoor education. I hope that my findings may be incorporated in part into the design of a curriculum for elementary teachers in Ghana.

Enclosed is a sample of the questionnaire which I would like to circulate to your teachers. Please indicate the number of copies required for your school on the form included with the self-addressed envelope.

I plan to conduct the study as unobtrusively as possible. Completed questionnaires will be returned directly to me in unmarked envelopes thereby ensuring complete anonymity for both teachers and schools.

Your cooperation in this study will be appreciated. Thank you for your help.

Yours sincerely,

Joseph K. Tufuor (Student)
Please complete and return in the enclosed, pre-paid, addressed envelope.

Name of School: ____________________________________________

Number of your teachers who have worked with children at
North Vancouver Outdoor School for at least one
week _________________________________________________________

Please indicate if you need extra copies for your
personal file. (No. of copies needed) _______________________

Note:

Final returns will be made directly to me by individual
teachers using unmarked envelopes, thereby ensuring
complete anonymity of teachers and schools.

J.K. Tufuor
Dear Mr.

RE: Outdoor Education Survey


Enclosed are the questionnaires which I would like you to distribute to all your teachers who have worked with children at the North Vancouver Outdoor School for at least one week. Final returns will be made directly to me by individual teachers using the stamped, unmarked envelopes. This will ensure complete anonymity of teachers and schools.

As you recall, the purpose of this study is to assess the opinions of experienced outdoor education teachers regarding the items they feel to be of value in any teacher-training program in outdoor education. I hope that my findings may be incorporated in part into the design of a curriculum for elementary teachers in Ghana.

Once the questionnaires have been analysed you will receive an abstract of my findings.

Thank you for your help.

Yours sincerely,

Jospeh K. Tufuor (student)

JKT/had
Enclosures
APPENDIX F

COVERING LETTER TO PRINCIPALS

("FOLLOW-UP" LETTER)
Last week, questionnaires were sent to you to be distributed to outdoor educators in your school. As you recall, the purpose of the study is to help identify important topics in developing a teacher-training program in outdoor education.

I am happy to inform you that the response has been encouraging; many teachers have already responded. Since we do not know those teachers who have responded it is difficult to reach them individually. We shall be grateful if you could extend our appreciation to all teachers in your school who are helping us in this study.

We know that the good response would not have been possible without your cooperation; thank you for finding time to help us. When we have received all the questionnaires and analysed the results we shall send your school an abstract of the study.

Thank you for your help.

Yours sincerely,

J.K. Tufuor (Student)
APPENDIX G

COMPONENTS SUGGESTED BY TEACHERS
APPENDIX G

Responses of Teachers to Item 36, Soliciting Additional Components

Level of interest of teacher(s) involved in outdoor education.

Teaching on developing love of the outdoors.

Lesson plans which have been used by other teachers.

Criteria for site selection related to program objectives.

Recreational activities on-site.

Filming or taking slides of students while they are doing outdoor activities. They enjoy seeing these later on.

Provide a social opportunity for the teachers and counsellors to interact during the outdoor program.

A rich scientific background: biology, ecology, geology, forestry, etc. The person thus prepared can create suitable curricula.

Relating what kids learn at outdoor education to their lives after they leave school.

Perhaps a knowledge of animals, especially farm and domestic animals. Farming and animal products, dairy, egg, etc. are usually a part of most permanent outdoor school sites.

Preparation of campfire sing-songs, games, skits, etc.

Survival techniques.

Helping children to become self-sufficient in the outdoors.

The development of self-concept, self-worth in the outdoors.

Safety or survival studies.

Staff should have a real love of the outdoors and deep interest in nature!
Effective methods (acceptable) of making their environmental concerns known to people who make the final decisions in resource management.

Some concern or consideration to the students age level, local background and ability.

Specific training in outdoor activities.

Ideas for funding such activities.

The integration or ways of integrating outdoor education in every subject area the child takes.

Opportunities to use the skills, resources etc. with children during the training period.

Developing performance objectives for students.

Learning how to relate this important subject to all age groups.

Developing a strong self-concept and self-image for each child.

Workshop for teachers presenting concrete teaching ideas one can use with their class.

The converse of #5. Ways of making students aware of the impact of his environment on man.

Use of skills learned to be put in practical use i.e.: overnight.

Alternate activities both indoor and out, small and large groups. An emergency program.
APPENDIX H

Comments made by teachers

You seem to have covered everything!

If you have a philosophy of outdoor education it should speak for itself. I think all the items are important.

I feel the impact of man on his environment is the crucial point. Inculcating a love of the outdoors seems the best way of ensuring optimum use. The (the least important items selected) are necessary, but they would require very little emphasis.

I found the second paragraph of your cover letter very patronizing, particularly the last sentence. Canadians have not been particularly adept at preventing abuse of their own environment.

I hope my responses are of some help.

I believe an awareness of one's nutrition is very important.

Good luck!

Let me begin by thanking you for the opportunity to air my concerns about a subject I feel very strongly about, that being outdoor school education.

a) In my experience, outdoor schools greatest downfall comes from disagreements between the individuals who work there. Most often because the majority of people are assigned the post and didn't choose it freely, a sad state of affairs. You can take the horse to the water, but you can't make him drink! This situation comes from the lack of serious application the school board directs towards an outdoor school, such as the North Vancouver outdoor school.

b) Secondly, a more comprehensive program needs to be developed between the High School students (counsellors) and the permanent outdoor school staff. Too often the High School students are
given the opportunity to attend outdoor school as a reward for previous hardwork or favors. Not, on their possible merits as a counsellor. Good kids and good counsellors are not always the same thing. Perhaps a greater communication between the outdoor school and the high school teachers and students would help.

c) I consider outdoor school to be a valuable and worthwhile endeavour on any level. I hate to see it not receiving the care and serious attitude it requires.

This seems to be a very comprehensive list.

I feel that everything included here is really important to any teacher training program.

#6 - An appreciation will automatically occur.

A good questionnaire. - questions easy to understand.

Item 22 and 21 are locally determined. The students in your program will not generally be aware of the specifics in a district and therefore it will be quite time consuming to understand policies and regulations on a province wide basis.

When you collate the results, I would be interested in your analysis of the questionnaire (findings and conclusions).

Sorry, I think they are all important. Everything on this list is so damn important, I couldn't relegate any of them to oblivion. Would make a super checklist for evaluation of a programme!

Satisfactory. Everything is clear.

Impossible to choose the least important ones, but——

This is a rather well prepared questionnaire.

Actually this wasn't too painful and since I believe in the cause! Hope it helps.

Sounds like a very interesting course. Good!
APPENDIX I

RESPONSES OF TEACHERS TO LIKERT ITEMS
APPENDIX I

Responses of Teachers to Likert Items

a) Responses of Teachers to Components 1 to 10

<table>
<thead>
<tr>
<th></th>
<th>G1</th>
<th>MI</th>
<th>SI</th>
<th>LI</th>
<th>NI</th>
<th>Total*</th>
<th>Mean**</th>
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</thead>
<tbody>
<tr>
<td>1. f</td>
<td>21</td>
<td>19</td>
<td>29</td>
<td>2</td>
<td>0</td>
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</tr>
<tr>
<td></td>
<td>%</td>
<td>29.6</td>
<td>26.8</td>
<td>40.8</td>
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</tr>
<tr>
<td></td>
<td>%</td>
<td>35.2</td>
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<td>1.4</td>
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**Calculated from individuals who responded to item.
b) **Responses of Teachers to Components 11 to 20**

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