# THE DEVELOPMENT OF A RESIDENTIAL OUTDOOR SCIENCE SCHOOL IN WEST VANCOUVER SCHOOL DISTRICT

by

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## ABSTRACT

THE DEVELOPMENT OF A RESIDENTIAL OUTDOOR SCIENCE SCHOOL IN WEST VANCOUVER SCHOOL DISTRICT

This study describes the development and operation of a Residential Outdoor Science education program by West Vancouver School District in British Columbia, Canada. During the period of the study the author was employed by the West Vancouver district as science consultant.

The study consists of three portions: a review of the existing literature of Outdoor Education in general, and Outdoor Science Education in particular, with reference to the development and operation of residential outdoor school programs; a presentation of data gathered by the author and by the school district concerning the operation of the program during a four month trial period, involving seven hundred grade seven students; and third, a critical review of the data with specific reference to the reviewed literature. The study presents a list of propositional guidelines for the consideration of future developers of outdoor school programs and researchers in outdoor education.

The study found several factors which were of great importance for future consideration in the planning, development, and implementation of an outdoor school program using a residential site. First, the choice of site was found to be critical in terms of location, size of site, and biological and aesthetic characteristics. Second, the interpersonal learning which occurred as a consequence of the residential experience was considered to be a major outcome of the program and clearly this type of learning outcome should be planned and facilitated

in future studies. Third, the need for communication between all those involved in the program: outdoor school staff, classroom teachers, school administrators, parents and students, was emphasized. Fourth, although the focus of this study was on science curriculum, it was found that a broadening of this curricular emphasis to include other areas would be adviseable. Finally, there is a clear need to relate the outdoor school program to the on-going experience of the student during the entire school year.

The present study does not attempt to compare the effectiveness of outdoor education with other forms of education, nor does the evaluative data deal with the attainment of educational objectives, but rather with the process of design, development, and operation of a residential outdoor school for a school district.

## ACKNOWLEDGMENTS

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I would finally like to express my gratitude to the teaching staff involved in the operational studies reported in this dissertation project. Without their untiring efforts the project would not have been possible.

E.W.T.J.

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"The ultimate goal of the educational system is to shift to the individual the burden of pursuing his own education. This will not be a widely shared pursuit until we get over our odd conviction that education is what goes on in school buildings and nowhere else ....
The world is an incomparable classroom, and life is a memorable teacher for those who aren't afraid of her."

J.W. Gardner

"Self-Development," Science,

Vol 143 p. 641, Feb. 14, 1964.

Chapter 1.

## I. THE BACKGROUND AND PURPOSE OF THE STUDY

In July, 1969, The Board of School Trustees of School District #45, West Vancouver, in British Columbia, Canada, decided to operate a residential outdoor school program for the students of that distrct. This decision provided the author, who was employed as a science consultant by the Board, with a unique opportunity to study the development and implementation of an outdoor school program in a public school setting. This study is a historical review of the development of the outdoor education program in the School District. The study also compared the development and operation of this program with the statements made in the literature concerning Outdoor Education, with special reference to Outdoor Science Education in a residential school context. On the basis of the literature review and the case historical review of the actual operation, certain guidelines for the development and operation of Outdoor Science Education programs are proposed for the consideration of future workers in this field.

The study did not attempt to compare the effectiveness of Outdoor Science Education in the regular school context. The study also focussed its attention upon Outdoor Education with a curriculum focus in Science. While some of the operational and logistic concerns reported in the study may have application to many forms of residential outdoor education, no attempt is made to review the curricular content of outdoor education beyond science. From the outset also, special

mention should be made of the dual role of the author, who was simultaneously both an observer of the program, in the interests of the present study, and an employee of the School District who was charged with the implementation and evaluation of the program for the Board of School Trustees. Every attempt has been made in this description to separate these two roles, and it is in the interests of objectivity that considerable reference is made to appended materials which were actually used in the program, or generated during it, including original reports, letters and evaluation questionnaires developed by the school district.

Finally, it should be noted that the program considered in this review involved only students from Grade Seven (age 11-13), in an outdoor school program lasting five days, in a residential "camp" setting. No attempt is made to generalize the observations of this study to much younger or older students, or to day trips or to longer programs in residential facilities. Of course, the study also operated within the context of a publicly supported school system. Its findings may not be applicable to outdoor education or conservation education programs operated by private agencies such as the YWCA or Boy Scouts.

## II. DEFINITION OF TERMS

The term outdoor education is somewhat vague. It can be and has been applied to virtually every educational experience conducted outside school walls. For the purposes of this study the definition used is that of Hammerman and Hammerman (1964):

> "Outdoor Education in the schools is an integral part of the curriculum which involves an extension of the classroom to an outdoor laboratory; a series of direct

> experiences in any or all phases of the curriculum involving natural materials and living situations which increase awareness of environment and life; a program that involves pupils, teachers, and outdoor education resource people planning and working together to develop an optimum teaching-learning climate." (pp. 8-9.)

In this study the curricular emphasis of the program was science, and the experience was five days (one school week) in-length, conducted in a residential camp setting. The program will be referred to as a residential outdoor science school.

## III. OUTLINE OF THE STUDY

Chapter two presents a review of the literature of Outdoor Education. The literature reviewed is that specifically concerned with the development, implementation and operation of a residential outdoor school program, with special consideration to literature dealing specifically with outdoor science education. Chapter three describes the actual history of the program from the decision to implement and operate the program, as made by the Board of School Trustees, until its termination. This description includes details of operation, finance, curriculum, and evaluation by the school district. Chapter four presents the information obtained concerning the program from the various data-gathering mechanisms employed by the persons involved in the program. Chapter five basically considers the data obtained from the program and discusses that data in the light of criteria and recommendations, concerning the operation of residential outdoor science school programs which are available in the literature of outdoor education. Chapter six presents a list of guidelines for similar

programs which can be subjected to rigorous evaluation under more controlled conditions, and which may be of assistance to persons attempting future program development in this area of education. Chapter six also summarizes the study.

## Chapter 2

## REVIEW OF LITERATURE

### I INTRODUCTION

This review of literature relating to outdoor education has focussed on certain specific points of concern to the present study. Thus, the review has selected literature dealing fairly specifically with residential outdoor education experiences. Special emphasis has also been given to material dealing with the design, implementation, and operation of outdoor school programs, including curriculum, site, finance, and logistics. The curriculum focus of the program reviewed in this study was science. Much of the literature of outdoor education in fact deals with programs with a science, or at least field biology, conservation, or ecology focus. The review has not attempted to determine the effectiveness of outdoor education in comparison to more classroom centered or located forms of education. In addition, the majority of the literature considered here is American or Canadian in context.

### II DEFINITIONS OF OUTDOOR EDUCATION, ITS OBJECTIVES

The definition of outdoor education chosen for this study is that of Hammerman and Hammerman (1969), referred to in Chapter 1 (p.2) This definition was selected because it seemed most appropriate to the focus of the program described here, and because it was more or less typical. The choice of this definition was, therefore, somewhat

arbitrary and other definitions do exist.

> Outdoor education is a means of curriculum enrichment through experiences in and for the outdoors. It is not a separate discipline with prescribed objectives like science and mathematics; it is simply a learning climate which offers opportunities for direct laboratory experiences in identifying and resolving real-life problems, for acquiring skills with which to enjoy a lifetime of creative living, for attaining concepts and insights about human and natural resources, and for getting us back in touch with those aspects of living where our roots were once firmly established.
> Smith (1963) p. 19.

Many writers have attempted to list and to describe objectives for outdoor education programs. Notable among these are Smith (1963), Hammerman and Hammerman (1964), Donaldson (1965), Mand (1967) and Russell (1967). Gabrielsen, (1965) reviewed statements of objectives published by a number of authors and summarized these objectives stated in the literature to that date as:

A. To teach the elements of democratic living through group living, planning and sharing.
B. To provide direct experiences in the natural and biological sciences.
C. To teach the importance of an appreciation for natural resources through realistic projects.
D. To provide the opportunity for meaningful work experiences.
E. To teach the skills involved in outdoor recreation, such as fishing, camping, boating, hunting and hiking.
F. To teach personal health and safety.
G. To provide the opportunity for students to assume responsibility and develop self-reliance.
H. To provide the opportunity for enjoyable fun experiences in the out-of-doors.
I. To teach survival in the out-of-doors.
J. To integrate as much as possible the outdoor experience with the school curriculum.

This summary list emphasizes certain main themes in outdoor education. These include direct experience in the natural and biological sciences, experience in group living in a residential

setting, and the teaching of certain outdoor recreational skills. Many authors have stressed that there should be a close relationship between the outdoor school educational program and the on-going program in the regular school setting (Smith,1963; Donaldson,1963; Hammerman and Hammerman,1964; Gabrielsen,1965; Mand,1967.) Hammerman and Hammerman (1964), for example, state that the residential outdoor school experience can only be justified on the basis that it can help fulfill the aims of education in a way "indoor education" cannot. The fundamental purpose of an outdoor education program, states Hammerman and Hammerman is,

> ... to provide a setting for curricular experiences that cannot be offered or achieved as readily within the confines of the school building or in some other setting outside the school. P.8.

The idea that outdoor school experiences provide a unique "laboratory" for experiences in the outdoors is exemplified in the following statement:

> We as teachers must constantly look for opportunities to go beyond the classroom and provide for students to learn about their environment through first hand experiences. Children must understand the world around them, and discover that what they do and learn now will in the future play an important part in the earth's environmental system. Vivian (1971)

But outdoor school programs don't only provide an exposure to the outdoor or natural environment. Stapp (1965) and Kirk (1970) both emphasize that the major focus of outdoor school experiences should be the development of an understanding of ecological principles through the first hand study of living organisms in relationship to their natural environment. There would appear to be general agreement among various authors that outdoor education experiences provide a unique

opportunity to enrich the experience of the learner through first hand encounter with nature, while developing a better understanding of ecological principles. These are seen as the major curriculum objectives of outdoor education programs by the majority of authors, but the social or interpersonal, and skill objectives are also mentioned prominently.

## III THE METHODOLOGY OF OUTDOOR EDUCATION

It is probably safe to say that while outdoor education programs may occur in a unique setting, that few unique methods have developed for instruction in that setting. The methodology of outdoor education is mainly drawn from the methodology of classroom instruction, with special emphasis on the methodology of science education. For example, Knapp (1967) and Gillenwater (1969) stated the criteria for using a teaching method in outdoor education should be the same as for its use in the classroom, in short, those methods which have shown the best general educational impact on students in the classroom should also be used in the outdoor education program. In fact, literature directly concerned with the effectiveness of various teaching methods in outdoor settings is virtually non-existent. Gabrielsen (1965) used the work of Sells, Loftus, and Herbert (1941) to support his thesis that the "activity" method should be the main mode of instruction in outdoor schools. The Sells study was done in classrooms of the New York Public Schools. Other writers, notably Smith (1963), Hammerman and Hammerman (1964) and Mand (1967) have concurred that the activity and project methods of instruction should be employed in outdoor education programs.

Several writers (Hammerman and Hammerman, 1964; Gabrielsen, 1965) have noted that Outdoor School programs allow for larger blocks of time for project activities, for extended inquiries, and for the investigation of more difficult problems.

Because of the tendency for Outdoor School programs to focus their curriculum on science, field biology, or ecology, trends in methodology in science education have also had an impact on teaching methodology in outdoor education. Blackwood (1966) stated that contemporary science curricula emphasize inquiry, discovery, and investigation at all grade levels. Blackwood also stated that outdoor education programs should continue this emphasis. Harding (1968) stated the assumption (unproven), that students who had direct experience in the natural environment would find it more easy to learn complex ecological concepts and relationships in the classroom setting. Hurd (1969) listed criteria for using the discovery method in outdoor education:

A. Define the investigation. Keep the problem relatively narrow.

B. Give the field work a theme. Each student can give his investigation a theme or the teacher may give some general themes for study to help the student focus on an investigation.

C. Identify concepts that might be brought out in the outdoor problem. This stage is difficult since so many facts are needed to construct concepts, it is easy to let the mass of facts cloud concepts. Certainly collecting, naming, classifying and gathering data seem to be rote memory learning.

Facts and inquiry go hand in hand in the learning process.

D. Condition the student for field work. Adequate preparation will allow the student to investigate problems such as what to look for, develop techniques they will need to solve their problems, and stimulate organizing and planning of investigations that can be done out-of-doors. If this stage is done it will develop students into careful workers and the data they gather will be more valid.

E. Follow up the field investigations.

Studies out-of-doors are not an end unto themselves, they do not reach their educational potential until the results are incorporated into problems or topics under discussion. The follow-up is not something apart from the field investigation, it should lead to greater insight and interest in the regular class activities, it should stimulate new ideas, and inspire new investigations on the part of the participant.

According to Blackwood (1966) the great value of the discovery approach in outdoor education is that pupils have real experience in using the methods of scientists. He states that "the ideas gained about their environment will have more meaning when pupils have learned them through direct observation based on investigations of their own."

Thus it can be seen that the contemporary emphasis on the inquiry approach or discovery method in science education was generalized to the mthodology of Outdoor Education by several writers in this latter field.

Before concluding this discussion of the literature dealing

with the content, objectives, and methodology of outdoor school programs, I should also identify one other stated outcome of outdoor education programs. Vivian (1971) stated that favorable attitudes toward, and informed participation in, conservation programs may be attained when students understand ecological principles illustrated in their environment. Properly devised field studies (according to Stapp, 1965) provide knowledge and insight necessary for effective participation in conservation activities. This development of an informed citizenry through Outdoor Education is certainly identifiable as another of the objectives of outdoor education as stated in the current literature.

## IV CONSIDERATIONS IN THE DEVELOPMENT AND OPERATION OF AN OUTDOOR SCHOOL PROGRAM

Much has already been said in this review of literature concerning the use of residential outdoor education programs as an "outdoor laboratory" offering unique opportunities to extend the range of experience of the learner with certain natural objects and processes. The present study is concerned with a residential outdoor science school program. It is therefore important to consider not only the literature dealing with the objectives, content, process and methodology of Outdoor Education, but also to consider what has been written regarding operational and logistic considerations such as site, physical facilities, staffing, support services, and finance. This portion of this review of literature is concerned with these aspects of program development and operation.

A. The Site for Outdoor School Programs

1. Natural environment of the outdoor school site.

One of the most important aspects of any outdoor residential program is the type of natural environment available for use. Smith (1963), Hammerman (1964), and Cowell (1968) maintain that the environment should provide opportunities for investigation in as many areas of natural science as possible. The area of use should be large enough to provide study in various types of environments, aquatic, forest and grassland; and large enough to allow rotation of study areas in order that the centre does not collapse or become damaged due to high student use (Gabrielsen, 1965; Cowell, 1968; Outdoor Education Survey in Canada, 1969). This variety of environments must be present on the "doorstep of every residential site" and not miles away. Cowell (1968) and Smith (1969) maintain that good site resources should not be sacrificed for considerations of the convenience of transportation and short distance between school and outdoor school site, although if these criteria can be satisfied so much the better. Smith (1963) and Gabrielsen (1965) consider one of the most important aspects of the natural environment should be scenic beauty and all sites should have areas where it is "just a lovely place to be" (Cowell, 1968).

2. Location and size of Site.

All writers in the field stress that a feeling of isolation should prevail when students are at the site. The size of the site (Smith, 1963) should be a minimum of one acre per child

attending.

Where possible easy access is desirable but should never be a deciding factor over the natural environment in selecting a site (Smith, 1963; Hammerman, 1964; and Mand, 1967).

Smith (1963) and others state "it is preferable that a school own and operate" their own camp facility, however, in the light of financial considerations it may be more "feasible" to rent existing facilities. The ultimate aim should be towards developing a school owned and operated site (Smith, 1963).

Mand (1967) strongly urges the delopment of a master plan when purchasing and developing a site.

3. On-Site Resources: Buildings and Services.

Basically, outdoor camp facility development is concerned with satisfying four areas of need. These are: sleeping, dining, activity, and administration.

a. Housing Units

Smith (1963) and Mand (1967) outline two possibilities for housing. These are:

(1) Dormitory buildings accommodating twenty-five to thirty-five campers in two wings. Each wing has shower and lavatory facilities.

(2) Decentralized small units housing eight to ten persons with washing and toilet facilities located in a central location. This approach requires more staff and is costly if plumbing and heating are included to facilitate winter use (Mand, 1967).

(3) Main Lodge - Dining Hall

Each camp requires one large central building that will be large enough to seat all campers and staff at meal time (Mand, 1967).

b. Other Buildings

(1) Laboratory and Nature Craft Area.

Indoor needs should be roughly equal to the outdoor time if you really want to make much out of what you are doing (Cowell, 1968). A large building should be available for project work. This building should provide work space, storage space and display area (Mand, 1967).

(2) Dispensary or First Aid Station.

This building is important even at a short term camp and should include sleeping quarters for the nurse and beds for one or two patients (Sharp, 1947; Mand, 1967).

4. Equipment and other physical facilities

In order to effect the curriculum objectives of having students work creatively on projects, a large variety of equipment and materials must be available for student use. Marksberry (1963); Gabrielsen (1965); Torrance (1967) and Cowell (1968) all emphasize the need for science equipment, materials to work with, adequate space and good libraries, if maximum learning is to take place.

Water Supply and Sanitation Measures.

According to the Outdoor Education Survey in Canada (1969), consideration must be given to the quantity of water needed.

This report states that when showers and flush toilets are included in the facilities, a minimum of ten gallons of water is enough not only to provide for daily use but enough for a two-to-five day emergency period. All water and sanitation facilities for camps should meet all local and provincial health regulations.

B. Food

There is virtually no mention in the outdoor education literature of kind or standards of food for outdoor residential schools. Smith (1963), however, says that a learning experience can be provided by having students help plan the menu.

C. The Staffing of a Residential Outdoor School Program and Facility

1. Director

Leadership is the most important factor in a successful outdoor residential program (Gabrielsen, 1965). Smith (1963), Gabrielsen (1965), and Mand (1967) indicate that if a school district is going to operate a program it should have a district camp director. Smith et al (1963) list the following leadership requirements for those involved in outdoor education programs:

a. A knowledge of human growth and devleopment which helps (a) understand the nature of learning in informal and life-like situations; and (b) the behaviour of children and youth in out-of-classroom settings.

b. Competence in teaching methods in informal outdoor settings, and an ability to relate such learning to classroom objectives and activities.

c. A general knowledge of the outdoor environment and the nature of outdoor activities, with competencies in interpretation and the teaching of outdoor skills. (pp.247)

According to Gabrielsen (1965) great care must be taken in the

selection of the director.

> ... The camp director's qualifications should be consistent with those required for a good school administrator who has had considerable experience in camping and outdoor education... He should have excellent administrative ability... a sound educational philosophy and a genuine belief in democratic principles and democratic administration. The camp director should welcome, develop and maintain new ideas, and recognize possible program changes and developments for himself and staff. A good camp director should have knowledge of business techniques in purchasing and ordering... He should have a general interest in and knowledge of the growth and development of children.
> (Trillingham, 1954).

Clarke (1951), Smith (1954), Hjette (1954), Squires (1954) and Gabrielsen (1965) all lend support or make similar statements to the qualifications stated by Trillingham (1954).

2. The Role of the Classroom Teacher in a Residential Outdoor School Program

According to Gabrielsen (1965) teachers usually play one of two distinct roles when participating in outdoor education residential programs. The first of these roles is that of an observer. As an observer the teacher often has no choice other than to accompany his or her class to the residential site, where the class is then taken over by the "specialist" in outdoor education, the camp staff. In this situation the classroom teacher is supposed to watch and learn. The second role that the teacher may play is that of a leader. In this situation the assumption is made that the classroom teacher is the key person in running the residential program for his class. All other camp staff, director and specialists are present to assist the classroom teacher in running his

or her program.

Gabrielsen (1965) brings these two views to light, on the role of the teacher in an outdoor residential program. He states that there is a "cleavage between the duties of the camp teacher and the duties of the classroom teacher." In camp the teacher usually plays the role of "observer" as distinct from the separate "camp staff".

Arguments favouring the classroom teacher's role as an observer are (Gabrielsen, 1965):

> a...Being relieved of major responsibilities, the teacher has an opportunity to observe students in a type of setting which will often reveal patterns of behaviour not manifested in the formal classroom.
>
> b... Students receive a more significant experience ... for the teachers who lead them are outdoor education specialists and know their subject matter thoroughly.
>
> c... School camping is a twenty-four-hour-a-day responsibility, and the teachers need free time away from their students for relaxation; hence, the need for camp staff.

Objections to the role of observer are (Gabrielsen, 1965):

> a... The school camping experience should be a continuation of the normal school curriculum transferred, but somewhat modified, into the outdoors, and later transferred back into the classroom... Only the classroom teacher knows his or her curriculum procedure thoroughly enough to effectively carry out the school camping experience as a total part of the school.
>
> b... School camps provide the classroom teacher a unique opportunity to observe his or her students in a variety of informal settings... The classroom teacher should be involved with his or her students... in order to obtain a composite picture of the child.

Other school systems favour the classroom teacher taking complete charge, but more often than not, provide other teachers, such as specialists in music, art, and science to assist with the teacher's program (Smith, 1969).

Smith (1963), Hammerman and Hammerman (1964), Gabrielsen (1965) and Mand (1967) encourage teachers to co-ordinate their program with specialists in the field of outdoor education, but the classroom teacher should be the leader in the school camp program (Smith, 1963).

Thurston (cited in Gabrielsen, 1965), commenting on classroom teachers as camp leaders states:

> ... Basically, a qualified teacher is a good teacher who understands how children grow, develop and learn... Teaching in the camp requires an approach, skills and methods different from those often employed in the classroom. Since the outdoors becomes a laboratory for many learning experiences, the teacher needs general knowledge and acquaintance with the out-of-doors which can be obtained through pre-service training and internship, but mostly through effective in-service training.

The inevitable question which arises at this point is: "Should teachers be compelled to attend school camp with their classes" (Gabrielsen, 1965). The Tyler Texas School "camp bulletin" has this to say:

> ... The answer is an emphatic "No!" The teacher who is not a camper and doesn't want to be one but who feels forced, makes as poor a camper as does the child who is forced to attend. Our Superintendent has guaranteed that no teacher should feel the least bit of pressure to go camping.
> (Gabrielsen, 1965)

What special skills and/or preparation should a teacher involved in a residential outdoor school program have?

Gabrielsen (1965) has addressed this question and has stated that, in addition to the attributes of any good classroom teacher, a teacher in an outdoor school program should possess the following:

a. An understanding of the underlying philosophy of school camping.
b. An understanding of the benefits derived from school camping in child development.
c. Skill in integrating pre-camp, camp and post-camp experiences in the classroom so that the child has a continuing and total meaningful experience rather than a "one-shot" isolated experience.
d. An ability to work effectively with groups and to provide children's groups with democratic experiences.
e. Skill in working with varying size groups in an informal setting and in the outdoors involving "techniques of group structuring."
f. An understanding of the philosophy inherent in work experiences in the camp program.
g. Familiarity with, and an understanding of, the natural world, outdoor living and conservation and skill in integrating these activities with the school curriculum through direct experiences.

3. Other Teaching Staff: Counsellors or Teacher Aides

In a camp situation responsibility and leadership involves twenty-four-hour-a-day supervision representing a greater work load than one teacher can handle (Gabrielsen, 1965). For each class of thirty pupils, at least three counsellors or teacher's aides should be provided (Sharp, 1947 and Gabrielsen, 1965). Gabrielsen (1965) suggests that these counsellors may come from the following sources:

a. Other teachers from the school
b. Seniors from high school
c. College students performing field work or student teaching

d. Qualified parents
e. Volunteer citizens who possess special competencies in outdoor education.

A counsellor should have the same abilities as those listed for a teacher in that section of this review, (p.19)

4. Non-Teaching Staff: Cooks and Medical Staff

Because of the residential nature of the type of outdoor school program considered here, it is essential that food be prepared, and that medical services be available, at least on an emergency basis. The literature of outdoor education makes few discrete references to either food services as part of residential outdoor school programs, or to medical services. Smith (1963) delegates medical services as the responsibility of the School Director, and indicates that good food is essential to the morale of those attending the residential school.

D. Selection of Students for a Residential Outdoor Science School

1. Grade level

Smith (1963), Hammerman (1964) and Gabrielsen (1965) report grade six or seven children are involved in residential programs more than any other grade with preference given to grade six. No mention is made of an "optimum" age for outdoor education.

2. Numbers

Donaldson (1965) recommends that no more than eighty children be involved at any particular location at one time, but

states that this will depend on the director.

3. Parent Orientation

Gabrielsen (1965) and others recommend that parents be kept fully informed about the development of the program and about how it will be conducted.

E. Grouping of Students at the Residential Outdoor School

Previous reference has been made to the importance of Outdoor Residential School Experiences in terms of providing group living and problem solving opportunities for students. This interpersonal aspect of outdoor education makes the grouping of students for living and working especially important. The literature of outdoor education presents a diversity of opinion concerning this question. Smith(1965) recommended that instructional groups should not exceed fifteen students in number, and should, if possible, not exceed ten students. Sharp (cited in Smith, 1965) recommended that social groupings of students should not exceed seven to ten students in number, with a counsellor being included in each social group. Sharp (1947) and Donaldson (1965) have suggested that the maximum total population of an outdoor school should not exceed eighty students if the objectives of most outdoor school programs are to be accomplished.

F. Recreational Elements in the Residential Outdoor School Program

The experience of students at an outdoor school is a "total" experience, covering the entire twenty-four hour span of several days. Thus it is necessary for the organizers of an

outdoor school program in a residential camp to consider the "non-academic" time of the students --- free time, and time for recreation. Time spent in this manner can be an important contributor to the interpersonal or personal development objectives of outdoor education.

All writers in the field of outdoor education indicate that recreational activities should try to provide the student in an outdoor residential program with activities and experience not available in the regular school program. Activities such as camping, boating, fishing, archery and riflery are areas that could meaningful be incorporated into a program.

The timetable or schedule of activities for a residential outdoor school experience can be an important contributor to the success or failure of a program. Smith (1963), Hammerman and Hammerman (1964), and Mand (1967) all give examples of timetables stating that as much teacher and student participation as possible should go into the construction of the timetable.

Torrance, (1967) says that teachers are timetable dominated. To break this domination, it may be necessary to break completely away from the school environment for a period of time to allow teachers and students to be relieved of the pressures that contribute to and encourage this domination. Spending a week at camp should reduce many of these pressures (Hammerman, 1964; Gabrielsen, 1965).

G. Financial Considerations

The general financial procedure according to Gabrielsen (1965) is that school boards underwrite intructional expense and the children pay the cost of food and lodging. This does not adequately cover the phases of financing a school program (Mand, 1967). Mand also delineates the areas of responsibility in the financial operation of a residential program -

1. The cost of food and preparation is a responsibility of the parents.
2. The cost of capital improvements, operation and maintenance of a school camp is the responsibility of the school district.
3. The cost of equipment or supplies is the responsibility of the school district.
4. The cost of personal insurance for children is the responsibility of the parents.
5. Social service agencies, P.T.A.'s and service clubs pay for the impoverished child.
6. School camping is a non-profit venture.

The major variation on these themes is that if outdoor education has a place at all in the school curriculum, then there shouldn't be a breakdown of cost into areas of responsibility. From a philosophical point of view the entire cost of such a program should be underwritten by the school board just as any other curriculum area is covered. This view is consistent with the position already revealed in the literature that outdoor education experiences are an integral part of the normal school program.

## IV. THE EVALUATION OF RESIDENTIAL OUTDOOR SCHOOL PROGRAMS

No specific instruments have been designed to evaluate outdoor education programs. Hammerman (1964) and Mand (1965) give some examples of evaluation forms for students, teachers, and parents which have been used in existing programs. Mand (1967 and Gillenwater (1969) stress that evaluation needs much further investigation. Most writers indicate that programs should be evaluated but there is little guidance given in the literature as to how this can be accomplished.

## V. SUMMARY

It can be seen from this review of literature that at the time the Board of School Trustees of the West Vancouver School District initiated a residential outdoor science school program, a considerable body of literature existed concerning the curriculum, objectives, and operation of such programs. In Chapters Three and Four of this study the actual experience of the West Vancouver program will be presented. In Chapter Five the experience will be compared with the positions and recommendations which have been presented in this review of literature.

# Chapter 3

## DEVELOPMENT

### I. THE BACKGROUND OF THE ESTABLISHMENT OF THE OUTDOOR SCHOOL PROGRAM

The West Vancouver School Board had become interested in outdoor education after some of its members had toured the Toronto Island Outdoor School in Ontario during a Trustees' Conference earlier in the year. In June 1969, the Board hired an interested layman to act as the director of a proposed outdoor school.

The author had started his research in the area of residential outdoor science school programming at Simon Fraser University, and was interested in examining a residential program when the position of consultant for the District of West Vancouver was advertised. The role of the consultant was to develop a residential outdoor program with a science emphasis and to help implement an inquiry approach to science in the elementary schools of West Vancouver.

The author applied to the Board to develop the residential outdoor science school program and to carry out his research. The School Board accepted the author's proposal and appointed him to the consultant's position for the school year 1969-1970.

The School Board made firm their desire to run a residential outdoor science program in July 1969, after the author had been appointed consultant for the district. The program was to start September 15th, 1969.

## II. THE CURRICULUM AND PROGRAM OF THE OUTDOOR SCHOOL

As has been previously stated, the curriculum area chosen as the focus for the West Vancouver Outdoor School was Science. It was decided that there should be a theme for the design of the outdoor school program. The theme chosen was, "The Web of Life." It was felt that this theme allowed for adequate development of a number of related concepts and was suitable to the three main areas available at the outdoor school site. These three areas were: The Forest, the Marine Environment, the Farm. Diagrams 1-3 illustrate the overall curriculum of the outdoor school in relationship to the chosen theme and indicate the variety and scope of possible student projects. Table I illustrates a "typical" timetable of events for a five day program and also indicates how the three areas of study were included in each week's program.

It should be indicated that while this timetable is a "typical" timetable, it could be modified, as could various emphases in the one week program, depending upon the wishes of the teachers from the school involved in that week, and upon the availability of local resources, weather, tides, etc. Table I also indicates the committment of the program to the project method, with the total time for work on various student-developed projects being approximately one and one half days out of the total five day program. The program also made provision for the teaching of certain skills, which students

might employ subsequently in project work. The skills given major emphasis in the program were:

A. Mapping and Compass Skills;

B. Live Animal Trapping Methods;

C. Plaster Casting and Leaf Imprinting;

D. Weather Instruments and Weather Interpretation;

E. Microscopy.

In order to familiarize teachers and school administrators with the program, a booklet was prepared which outlined the program with respect to:

A. The Need for the Program;

B. The Philosophy of the Program;

C. The Objectives of the Program;

D. The Curriculum;

E. The Facilities; The Site;

F. The Staff;

G. A Sample Daily Schedule;

H. Transportation to the Site;

I. Financial Arrangements for the Program.

The booklet, along with a copy of all curriculum resource materials prepared to that date, was given to each teacher participating in the program during the first week of the school year (in September).

A "typical" daily schedule would be more or less as follows:

7:00 A.M. Rise, wash, tidy up belongings

8:00 A.M. Breakfast

8:30 A.M. Duties

9:30 A.M. Field studies and project work

11:30 A.M. Free time

12:00 Noon Lunch

12:30 P.M. Duties

1:30 P.M. Field studies and project work

3:30 P.M. Recreation period

5:00 P.M. Dinner

5:45 P.M. Duties

6:15 P.M. Free time

7:30 P.M. Campfire and entertainment

9:00 P.M. Cocoa

9:30 P.M. Lights out

While it should be noted that this daily schedule is quite full, it does include two periods of scheduled "free time" in each day, as well as a fairly lengthy recreational period in the late afternoon. It was hoped that in this way their would be a reasonable balance between the academic and non-academic aspects of the program.

## III. THE SITE FOR THE PROGRAM, FACILITIES, AND OTHER CONSIDERATIONS IN THE OPERATION OF THE OUTDOOR SCIENCE SCHOOL

### A. The Site

The site chosen for the outdoor science school program was a Salvation Army Camp, located at Langdale, on the Sechelt Peninsula of British Columbia. The site was located

immediately adjacent to the terminal of the British Columbia Ferry Authority, so transportation of students and equipment from the lower mainland was very simple.

While the site was convenient in terms of its proximity to the ferry terminal, it had certain disadvantages as a site for an outdoor school. First, the site was fairly small, and it was located between the major highway in the area, the ferry terminal parking lot, and private residential development, with the waterfront forming the fourth side. Forested areas were available nearby, but across the highway from the site. The waterfront was close, with the site having direct access to the seashore, but the marine life of the area was not abundant because of the influence of a nearby Kraft Pulp Mill and the inflow of a stream of fresh water. The site for farm studies was not actually at the camp, and this necessitated transportation of students involved in that portion of the program by automobile or bus. In no sense could the site be described as a "wilderness" nor even as containing relatively undisturbed natural elements.

B. On-Site Facilities

The Langdale site included a number of buildings, more or less typical of a summer church camp: dormitory buildings for student accommodation in small groups; a large dining hall/kitchen/recreation hall; an infirmary; and a number of other small buildings. One building was converted for use as a laboratory-project work space, including some

library resources. Because the school district was merely renting the facility, extensive changes could not be made.

C. Equipment

In addition to the equipment and materials brought to the site by each school during their week of occupancy, the outdoor school itself provided certain equipment and support materials:

1. Selected reference books, dealing with the curriculum of the program;
2. Equipment, materials, and chemicals for student use in project work;
3. A set of eighty complete rain outfits, including overshoes, pants, jackets, and rainhoods.
4. Assorted office supplies, paper, etc.

Some medical and first aid materials were available in the site dispensary.

D. Food

The outdoor school included a cook on its own staff and meals were provided for the attending schools during the five day period that they were in attendance at the school.

IV. STAFFING OF THE OUTDOOR SCHOOL

The staff of the Outdoor Science School included the following:

A. The Director

The director was employed by the Board of School Trustees in West Vancouver to oversee the operation of the

outdoor school. The person hired for this position was in fact not himself a teacher --- in fact, he was a veterinarian with an interest in the development of an outdoor school and of a school-farm program. The director hired the remainder of the permanent staff of the outdoor school, including:
a full-time teacher for the outdoor school program;
a recreational leader; a camp cook; a nurse.

B. A Teacher-Consultant

As has been described previously, the author of this study had originally been employed by the West Vancouver School Board to act as Science Consultant for the District. When the Outdoor Science School program was initiated, I was given, along with the director of the school, a major role in the development and operation of the program. In this capacity I developed the curriculum for the school and coordinated the training of teachers in the district who were to be involved in the program during the school term.

C. Other Full-Time Staff

These positions are described above (see, "The Director".)

D. Volunteer or Upaid Staff

In addition to the full-time staff described above, the outdoor school obtained the services of two student teachers from the Professional Development Program at Simon Fraser University. These two student teachers were employed

as additional resource persons to assist the teacher on the staff of the outdoor school, and the teachers from the schools visiting the camp.

Seventy-seven students from the community recreation classes of West Vancouver Secondary School were employed as counsellor-aides to assist with the groups of students attending the camp.

## V. SELECTION OF STUDENTS FOR THE OUTDOOR SCIENCE SCHOOL

### A. Grade Level and Numbers of Students Attending

Grade six and seven students are commonly selected for this kind of an experience. The Board of Trustees felt that grade seven would be the appropriate grade to participate in this pilot project. Their concern was that if the experience became part of the regular program, the present grade seven classes should not miss out on the experience.

For financial considerations two classes were chosen to attend camp at one time, sixty to eighty students.

### B. Orientation of Parents

An attempt was made to keep the parents of students attending the Outdoor Science School fully informed about the purposes of the program, and about details of its operation. The Chairman of the Board of School Trustees wrote a letter to all parents of students enrolling in grade seven in the school district at the beginning of September. This letter explained the Outdoor Science School project.

As Science Consultant, the author wrote a further letter to all parents of students involved in the program, explaining details of the week at outdoor science school. This letter was sent the week prior to the start of the program. The letter included a medical questionnaire to be returned to the respective schools, outlining any special health needs of individual students.

C. Grouping and Housing of Students

Grouping varied according to the activity. Instructional groups were twenty. Each instructional group worked in a specific area of study. The areas were: marine, forest and farm. (See diagrams 1, 2, 3). There were two teachers and two counsellors per group.

Housing was limited to dormitory accommodation due to the existing facilities. The dorms house sixteen to twenty students. Each dorm had one or in most cases two counsellors supervising the students.

## VI. RECREATIONAL ELEMENTS IN THE PROGRAM

The program provided for considerable recreational activity. As has been noted, the permanent staff of the outdoor school included a full time recreation leader. This person conducted a program of games and other recreational activities each day from 3:30 - 5:00 p.m. Each evening the Recreation Leader, assisted by other staff members led a evening program which included campfires, group singing, skits, games, and competitions.

## VII. FINANCING OF THE OUTDOOR SCHOOL

The operation of the Outdoor Science School was partially funded by the Board of School Trustees of the West Vancouver District, from the budget for the school district. Basically the school board provided those items which would form a normal part of the Educational Program offered in the regular school setting. This includes instructional personnel and resource materials, as well as staff specially provided for the outdoor school such as the program nurse and cook. The Board also rented the outdoor school site for the fall school term. Some special equipment was purchased especially for the outdoor school. Most notable of this special equipment was the set of eighty rain outfits for students.

The Board charged parents a fee of $25.00 for every student attending. This special fee covered the costs of items not normally provided by the school such as food and housing. However, in order to assist parents who could not afford to send their children, the Board established a contingency fund. In this way no child was deprived of the program on financial grounds.

The Board also provided funds to send the full-time teacher in the outdoor school program to a summer course on Outdoor Education offered in Ontario, at the Albion Hills Conservation School, during the summer preceding the operation of the outdoor school by the school district.

## VIII. EVALUATION

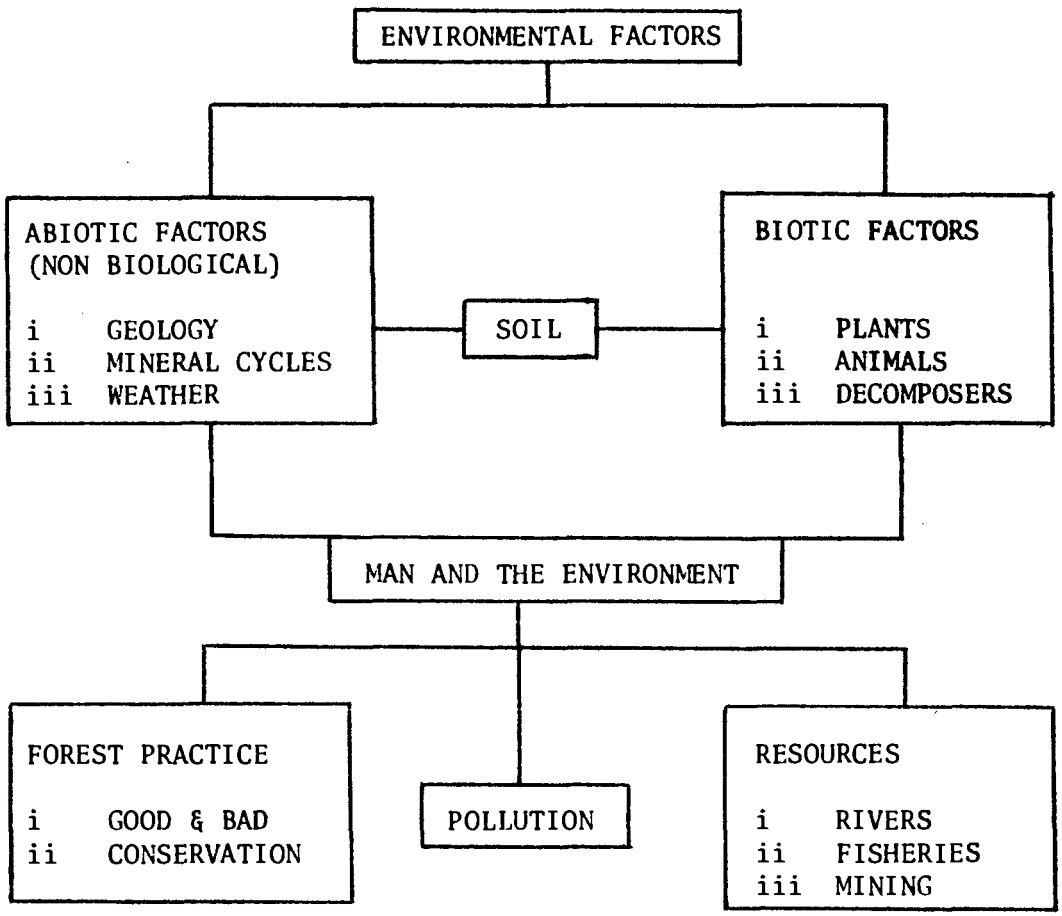
A number of measures were employed by the administrative staff of the school district in order to obtain information regarding various aspects of the outdoor school program. These measures, and the results obtained by the evaluation progress are discussed in detail in Chapter IV.

## IX. SUMMARY

The implementation and operation of the Outdoor Science School program by West Vancouver School District provides an ideal opportunity to examine the problems encountered and possible means of avoiding or eliminating similar problems in the development of future programs. Chapter IV of this study will examine the results obtained from various evaluative or analytical procedures. Chapter V will attempt to relate this information to the literature of outdoor education and to develop a set of propositional guidelines for the development, implementation, and operation of an outdoor science school in a residential setting.

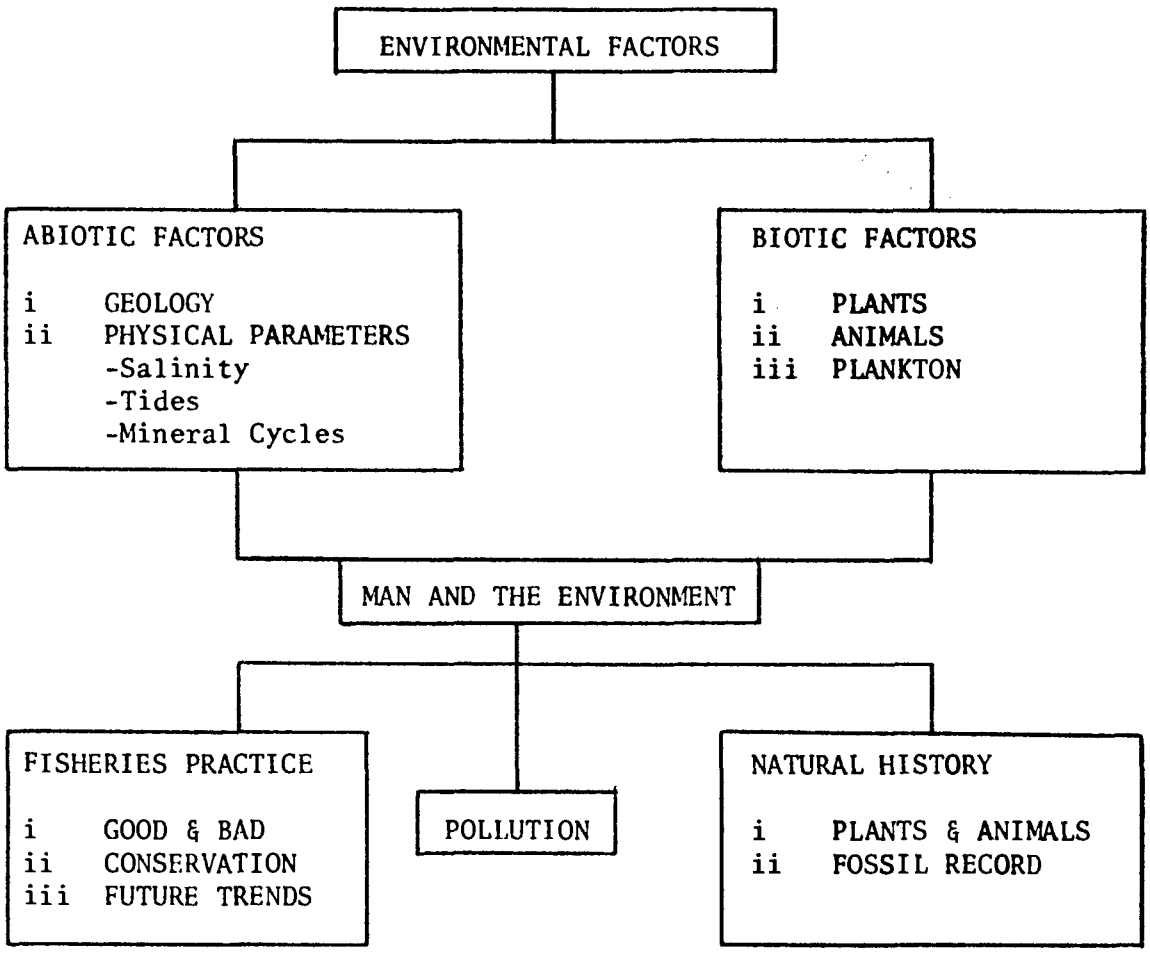
D I A G R A M 1

STUDY AREA 1 (FOREST ECOLOGY) : POSSIBLE AREAS OF STUDY



D I A G R A M 2

STUDY AREA 2 (MARINE ECOLOGY) : POSSIBLE AREAS OF STUDY



## D I A G R A M 3

STUDY AREA 3 (FARM) : POSSIBLE AREAS OF STUDY

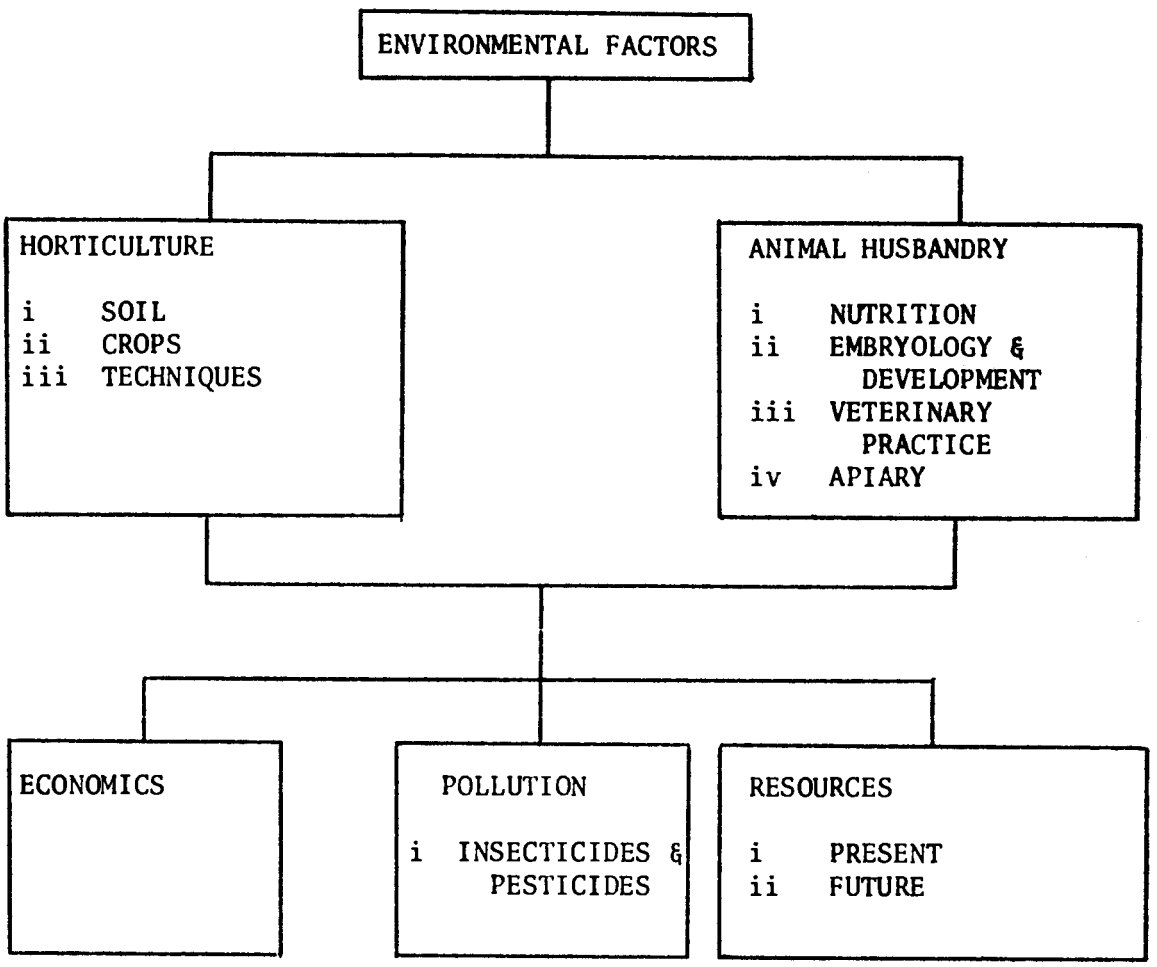


TABLE 1

| PROGRAM OF FIELD WORK FOR AN INSTRUCTIONAL GROUP FOR ONE WEEK | | | | |
|---|---|---|---|---|
| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
| Arrival<br><br>Cabin Grouping<br><br>Issuing of equipment, raingear and clipboards<br><br>Instructional grouping | Forest Study<br><br>A short walk and talk with an instructor on the ecology of the forest<br><br>Suggested areas of project work<br><br>Selection of forest project and starting project | Farm Study<br><br>Lecture and demonstration of sheep handling<br><br>Lecture and demonstration of handling and importance of bees | Marine Study<br><br>A short walk and talk with an instructor on the ecology of the sea<br><br>Suggested areas of project work<br><br>Observation of spawning salmon at Roberts Creek<br><br>Visit to beach near outfall of pulp mill | <br><br>Completion or further work on projects started during the week |
| Orientation<br><br>Duty roster Assignments<br><br>Development of skills<br><br>Use of equipment | Project work on forest | Lecture and demonstration of handling of poultry including embryology and chick development | Project work on any of areas selected from morning visits | Return to school<br><br>Arrived home at 3:00 P.M. |

Chapter 4

# THE EVALUATION OF THE RESIDENTIAL OUTDOOR SCIENCE SCHOOL PROGRAM

## I. GENERAL COMMENTS ON THE EVALUATION AND ON THE ROLE OF THE AUTHOR

School districts conduct evaluations of programs for a variety of reasons. They are obviously likely to be interested in the educational merits of a particular program, but they are also governed by political considerations --- Board of Trustees are composed of persons elected to direct the expenditure of public monies and the development of policy, and they are responsible to the electorate. Thus, it is safe to say that a number of considerations motivated the evaluation procedures employed by the school district in its evaluation of this program. It will be evident that the evaluation tended to center on the more mechanical, operational or logistical aspects of the program rather than on the educational merits of the experience, although some data, mostly in the form of statements of opinion, was definitely obtained. No real attempt was made to compare "outdoor" education to "classroom" experiences in Science Education. However, a great deal of information was obtained which may be pertinent to the development of a set of guidelines for the development and operation of an Outdoor Science School.

As has been explained previously, the author had a somewhat

unusual role or "position" in this project. I was not merely a detached observer, because while I was interested in this project from the standpoint of the information it would provide for future use and study in a broad sense, I was also an employee of the School Board with specific responsibility for many aspects of the program. I have attempted to separate information which may have been coloured by my responsibilities from more fully objective data in the following review of information gathered concerning the program.

## II. EVALUATION METHODS AND PROCEDURES

There have been few methods or devices developed specifically to evaluate outdoor education programs. Hammerman and Hammerman (1965) have noted that much of the evaluation done of such programs has been of a subjective nature.

There were essentially six types of information employed in the review of the outdoor program. These were:

Information from student questionnaires,
information from the questionnaires from Counsellor/Aides,
information from Teacher interviews,
information from the School Administrators,
informal information, including observations in the author's journal, comments from parents, and comments and letters from participants in the program.

It should be noted that the information discussed in this review was obtained on the basis of the four month period of

operation of the Outdoor Residential Science School at the Langdale site. Although it was originally hoped that the program would be repeated, the defeat of a financial referendum in the West Vancouver district in December, 1969 forced severe curtailment of many educational programs in the district. As a result, the district-wide outdoor school program was terminated in December of that year. However, essentially all students in the seventh grade attended the outdoor school in its first cycle of operation.

A. The Student Questionnaire

Because of the large number of students involved in the program it was decided that the only possible means of obtaining systematic feedback from them was through the use of a questionnaire survey instrument. The questionnaire employed was designed by the author, in consultation with the Director of Instruction for the School District, Dr. Len Sampson. A covering letter was sent to all teachers involved in the program, describing how to administer the questionnaire and what instructions were to be given to the students. The questionnaire was distributed to each group of students in the week following their visit to the Outdoor School. This meant that the results of the questionnaire may be influenced by some developmental changes made in the operation of the school during the term. An attempt was made to minimize such changes, and no major changes in program operation, curriculum or facilities or in the staffing of the school were made during the term, but it is

obvious that the staff of the outdoor school would benefit from their experience as the term progressed. This effect was weighed against the desirability of surveying students as soon as possible after their own experience at the school. The questionnaire survey was conducted of all seven hundred and twelve students participating in the program. Appendix E presents a copy of the questionnaire and summary of the questionnaire results.

B. Questionnaire Survey of Counsellor-Aides

Seventy-seven students from the Community Recreation program at West Vancouver Secondary School were employed on a voluntary basis as counsellor-aides at the Outdoor School. These students had close, regular daily contact with a group of students attending the outdoor school, and they became familiar with most aspects of the program during the one week cycle in which they attended the school. It was felt therefore that it would be useful to conduct a questionnaire survey of these secondary school students to obtain information concerning the program from them. The author designed a questionnaire for this purpose, which was basically similar, in terms of information sought, to that given to the grade seven student-participants. Appendix F presents the questionnaire and summarizes its results question by question. The same reservation applied to this source of information as to the first, namely the "evolution" or "experience" factor, which meant that some changes in the operation of the program might occur as the term progressed

and the staff became more experienced and subtly modified their approaches and methods. However, major changes were not made during the period considered in the evaluation. In this case the questionnaire was administered by the teachers of the secondary students on their return to school after the week at the outdoor school. A covering letter concerning the administration of the questionnaire was sent to the respective teachers.

C. Information Obtained from Participating Teachers

Each grade seven class attending the outdoor school was accompanied by at least one, and usually by more than one, teacher from their regular school. These teachers had a major responsibility in the operation of the overall outdoor education process, not only at the camp, but also prior to the visit of the class to the site, and following the on-site experience. It was felt to be extremely important to assess their reactions to the program and their opinions of it.

An interview schedule was selected as the means of obtaining information from participating teachers. The interview was chosen over the questionnaire for several reasons. These were:

1. Some of the required data was confidential in nature. The respondent was not likely to advance such information without the author's guarantee of confidentiality.
2. The interview provides an opportunity to follow leads and clues provided by the interviewee.
3. The interviewer is able to clarify and provide additional

information about the questions being asked.

The questions employed in the interview schedule related to the major areas covered by the two previously described questionnaire surveys, but also included material which had unique importance to the role of teachers in the program. All twenty-one teachers whose classes participated in the program were interviewed. Teachers were assured of the confidential nature of the interviews and that they would remain anonymus. Table IV summarizes the responses to the questions asked in the interview and presents the questions.

D. Information from Student Teachers Participating in the Program

As was indicated in Chapter three, two student teachers participated in the outdoor school program. These students were selected on the basis of a good record in their first teaching practicum, a good academic background before entering the teacher education year, and an expressed interest in the concept of outdoor education. These student teachers wrote a report about the program based on their four month experience in many phases of its operation. The full report is attached as Appendix H. Table VII presents a summary of the report. No attempt was made to survey the student teachers on a systematic questionnaire or interview basis.

E. The Report of Elementary School Administrators

The District Superintendent of West Vancouver School District asked the administrators (principals and vice-principals)

of the participating elementary schools to establish a committee to eveluate the outdoor school program. The administrators established a five member committee to undertake this task. All members of the committee had spent some time at the outdoor school while students were in attendence. One member of the committee had spent an entire two week period at the outdoor school. The full report of this committee is appended (Appendix G), and the information which it contains is summarized in Table VI .

F. Information from Informal Sources

1. The Author's Journal.

In order to provide some focus to his own day-to-day observations of the program the author kept a journal during the planning and operational phases of the program. Naturally, this information was subjective in nature, but it did assist him in thinking about the operation of the program in an analytical fashion.

2. Comments from the Parents of Participating Students.

No systematic attempt was made to gather data from the parents of students who attended the outdoor school. The board did receive some letters from parents concerning the program, which were, in the main, highly supportive. The administrators of the various schools also indicated support from the parents for the program. Some of these unsolicited comments from parents are attached as Appendix J.

3. Unsolicited Comments and Reports from Participating Staff Members, Teachers, and Administrators.

Although the teachers involved in the program were formally surveyed in the interview, and although the administrators presented a report as a group, a number of these individuals sent letters and reports to the Superintendent of Schools on their own initiative. Some of these materials are appended (Appendix I).

## III. A REVIEW OF THE INFORMATION OBTAINED ABOUT THE PROGRAM FROM THE VARIOUS SOURCES

One of the major problems encountered in attempting to synthesize the information obtained from the various sources was that while it is possible to relate the information obtained in each case to the main areas outlined above, and in Chapters two and three, namely Program and Curriculum, Site, Staffing, and so on, each of the groups provide this information in a somewhat different format and order, making close comparison of the perceptions of the various groups involved (e.g. Students, Teachers, Administrators, etc.) difficult and somewhat subjective in nature. This is a serious methodological difficulty and one which was not in the control of the author, inasmuch as some groups reported unsolicited and others devised their own manner of reporting. This fact highlights the need for school districts to coordinate their evaluation of a large and complex program such as this one in such a manner as to obtain data which is capable of comparison between reporting groups, and which is also

capable of ready numerical summarization. Tables II - VI attempt to summarize the data obtained from the various sources in an effort to make it more easy for the reader to cross-reference data about various features of the program from the various sources.

## A. The Curriculum and Methodology of the Outdoor School Program

### 1. Definition of Objectives for the Program.

The Information Booklet developed concerning the West Vancouver Outdoor School program listed the following objectives:

> ...to develop and supply instructional materials and programmes which exploit the potential of the marine and forest environment as a central and integrating theme through which many aspects of science can be taught more effectively and meaningfully;
>
> ... to stimulate interest in and an awareness of the broad field of ecology, recognizing the role the forest and the sea are destined to play in the future of B.C. and the world in general,
>
> ... to create an awareness of the heritage we have in our wildlife and to instill a responsibility in the students toward being better informed citizens when it comes to understanding wildlife conservation;
>
> ... to develop dynamic programs which provide students with meaningful experiences, expand the curriculum beyond the four walls of the classroom, recognize that children progress at different rates, and have different modes of learning, programmes which give all children a chance to be successful;
>
> ... to promote an approach to science teaching which is activity centered, individualized, inter-disciplinary and which employs a multi-media approach to teaching;

This booklet was distributed to all teachers and principals in schools participating in the program. It is worthy of note that prior to the distribution of this handbook concern had been expressed by the Administrators in the school district about the speed with which the Board of Trustees was attempting to implement the program and concerning the purposes of the program. A letter from an Administrator illustrates this concern and is included as Appendix I. However the response of teachers and administrators to the educational and social merits of the program, as illustrated in the Administrators Report and in the Teacher Interviews, was highly favourable after the conclusion of the project, (Tables IV and VI).

It would appear from this review of the West Vancouver program that statements of objectives are necessary in the establishment of an Outdoor Science School program. The objective statements explain the program to those participating in it, and allow experiences to be designed that will help the objectives to be met.

Although in the development of the program, the academic or curricular objectives were stressed, it became clear from the comments of teachers and administrators that they felt both, the academic and the social or interpersonal objectives of the experience to be of great importance. In interviews with teachers, the social value of the experience obtained a higher percentage of "excellent" ratings than

did the educational value of the experience, (Table IV). of the twenty-one teachers interviewed, fifteen commented that the social aspects of the program were the most important aspect. Seven teachers noted that better student-teacher relationships evolved during the week at outdoor school, while six noted that some discipline problems completely disappeared, (Table IV).

This emphasis upon the social or interpersonal benefits of the program does not mean that the educational value of the program was minimized in the evaluative comments. The Administrator's Committee report indicated that the program "provided a valuable educational experience to the students by:

> a. Providing them with a real opportunity to increase their scientific knowledge by solving real problems in a natural environment.
>
> b. Encouraging them in the appreciation of the beauties of nature (both large and small).
>
> c. Encouraging them to develop a sense of awareness to natural and scientific phenomena by being exposed to a situation which led to increased awareness and appreciation of the natural environment.
>
> d. Exposing them to the critical relationships which control the ecological balance in nature - the realization that man in seeking to satisfy his needs, often upsets the balance of the community with disastrous results.
> (Administrators report, Appendix G)

The administrators in particular made note that the idea of a curricular theme, "The Web of Life" seemed appropriate. But, while the emphasis of the program was focussed on the field of science, the Administrators report indicated

that other disciplines could well have been included in the curriculum of the school:

> The committee agreed that the programme in general was good and in keeping with the theme, The Web of Life. It is recommended that it would be desirable to broaden the content to include other areas of study than science, for example, at some future time the theme could be changed from science to art, geography or some other important area of the curriculum.
> (Administrators report, Appendix G)

2. Comparison of Various Elements of the Curriculum.

Both, teachers and students were asked to rank areas of the program. Table VII compares their ranking of these elements. It can be seen that in general the farm elements of the program obtained a lower rating from both, students and teachers, with the exception that the poultry element obtained a higher ranking from the students (third) than from the teachers (fifth).

3. Comments on Teaching Methodology.

It has been noted previously that the Inquiry and Activity methods were emphasized in the development of the program, with the student designed project being a major component in the student's academic experience at the outdoor school. The Administrator's report made specific mention of this element:

> Individual project work was perhaps the best part of the entire programme, although more time should be allowed.
> (Administrators report, Appendix G)

Eighty-six percent (86%) of the teachers felt that although the projects were worthwhile, more time had to be provided to complete the projects.

Of the students who participated in the program, seventeen decimal two percent (17.2%) voiced the opinion that more project time would improve the program.

The students in the program were asked a question on the way they learned best. Ninety-three percent (93%) thought they learned best by seeing and feeling things as they exist naturally, four decimal five percent (4.5%) thought they learned best by listening to lectures and watching films, and two decimal five percent (2.5%) thought they learned best by studying books and answering questions.

Another question was asked of the students to find out the way a teacher can best help them learn. Of the responses, eighty-nine percent (89%) of the students felt a teacher was most helpful by suggesting things to do and helping the student when he asked for assistance, ten percent (10%) felt a teacher was most helpful by leaving the student entirely alone to work, and one percent (1%) of the students felt a teacher was most helpful by telling the student what to do, and helping him continously.

It is interesting to note that although the students preferred mainly one style of learning and one style of teaching, when they were asked whether or not the outdoor school provided for them with regard to their individual

needs, ninety-seven percent (97%) of the students felt it did, indicating that the outdoor school provided the teaching environment needed for most students, even those with needs different from the majority.

B. The Site

1. Natural Resources.

The physical nature of the site used in the outdoor school program at Langdale was described in Chapter three. The limitations of the site, both in size and in the quality and diversity of biological communities available on it were also noted. The evaluation of the program highlighted these inadequacies quite clearly. The Administrator's report, for instance, stated the following in reference to the Langdale site:

> The site at Langdale was not suitable for the needs of an outdoor school ... The committee urges most strongly that an alternative site be investigated.
> (Administrators' Report, Appendix G)

This criticism of the site was echoed in the interviews with participating teachers. Eighteen of the twenty-one teachers interviewed rated the site as "poor". The majority of teachers interviewed also suggested that a new site should be found. As to the reasons for this rejection of the chosen site, thirteen of the participating teachers mentioned the lack of good biological resources on the site, while twelve mentioned the need to travel a considerable distance from the site for some program

elements, i.e., the Farm and the Pulp Mill. The student teachers' report echoed these complaints, and added that the site was too close to the highway, constituting a hazard because of the need of students to cross the highway to visit some areas (Table V.) Similar comments were included in the Administrator's report with specific mention of poor area for marine studies and the travel time required to some resources. Students participating in the program were not asked to comment on the site directly.

2. Facilities

a. Housing Units.

Mention has already been made of the comments of various program participants concerning the interpersonal or social value of the outdoor school residential living experience. The housing provided for students and staff would likely appear to either promote this interaction, or to detract from it. At the Langdale site, students were housed in groups of sixteen to twenty students per unit. It would appear that at least some of the evaluative reports found this size group to be too large. The Administrators' Report, for example, stated, that a new site should be selected to embody "better housing for smaller groups ..." (Appendix G) Eight of the twenty-one teachers interviewed rated the housing units as inadequate, while twelve teachers commented that the sleeping groups were too large,

and that smaller groups would make the experience more profitable. (Table IV).

b. Dining Hall - Kitchen.

Little direct data was collected on this aspect of the camp's facilities. The Administrator's report rated the kitchen facilities as "good" (Appendix G). The teachers interviewed rated the kitchen and dining facilities as either "very good" or "good". This building was a fairly large one, capable of seating all the staff and students of the outdoor school at one time. This meant that the entire school "community" could come together for meals. Undoubtedly this aspect of the site's facilities supported the inter-personal aspect of the program.

c. Laboratory-Project Work Area.

Mention has also already been made of the use of the project method in the program of the Outdoor Science School and to the emphasis given to this type of activity in the schedule of the outdoor school. It is obvious, therefore, that the physical facilities available to support project work are important to the successful use of this approach. Fourteen of the twenty-one teachers noted in their interviews that the laboratory facilities needed to be larger to accommodate student project work (Table IV). The author's journal contains the entry that students commented on the fact that too

few students could work in the project room at any one time. The Administrator's report also singled out this area as one of the facilities which would need improvement in any future program.

d. Dispensary/Medical Services

The medical facilities of the site seem to have been adequate, although little direct evaluative information was collected. It should be noted that almost four percent (4%) of the students who attended the program came with medication of some sort, which had to be taken during their time at the outdoor school. Ten percent (10%) of the students had some sort of medical weakness or problem noted on the medical forms returned to their schools by the parents prior to their attendance at the school. These facts indicate the need not so much for a medical facility, sick bay or dispensary, as for some qualified medical person on the staff of the school (e.g. a nurse) or for ready access to medical services.

e. Staff Quarters

Outdoor schools, because of the residential nature of their programs, are particulary demanding on their staff, inasmuch as staff must be "on call" virtually twenty-four hours per day. Some outdoor schools appear to employ common accommodation for both, the staff and for the students. Little data was gathered in this

study to suggest whether or not staff should have separate living quarters from the students. The Administrator's report did note that:

> a good site should employ suitable accommodation for staff, and the accommodation should be separate, with a small recreation area for staff attached.
> (Administrator's report, Appendix G)

Other aspects of the site's physical facilities were not specifically noted in this evaluation. Sanitation, water supply and other health measures appeared to be adequate. The major deficiency noted was in the natural resources of the site and its location. The site was quite small (approximately one third of an acre per student). This fact means that over a four month period of operation a certain amount of sheer physical attrition is bound to occur. During the course of the program the site was visited by two biologists from Simon Fraser University, Dr. Milton McClaren, and Dr. Richard Sadlier, respectively a botanist and a zoologist. They noted the wear and tear on the site, and recommended that the mojority of the forest studies be done beyond the perimeter of the actual site itself. Another matter of note was the proximity of the site to relatively urban facilities, especially to the Langdale Ferry Terminal and to the coast highway. The Administrators' report noted this lack of isolation and commented:

A good site should embody:

- ready accessibility to sources of interest;
- a "feeling" of isolation;
- an area rich in variety of experience on site, requiring no transportation.

(Administrators' report, Appendix G)

Certainly the aesthetic qualities of a wilderness setting would be desirable in an outdoor school program having a biological or ecological main theme. The comments contained in various components of this evaluation make this need for isolation and for high quality and diverse biological resources evident.

C. Staffing of the Outdoor School Program

The nature of the staffing of the residential outdoor school program has already been discussed in Chapter three. The evaluation did not attempt to obtain direct information about the individual personnel involved in the program, but certain facts became evident in the various evaluative information. The Administrators' report, perhaps because of their experience in staffing schools, made extensive comments about several of the staff elements:

Director:

> This person should have a thorough understanding of the goals of the school and experience in camp management. He should be a good administrator, with the ability to obtain complete co-operation from his assistants during the long and arduous period of relative isolation and continuous exposure to children. He should assume direct responsibility for one area of activity, the Education Programme.

> The other areas should be delegated to his assistants.
>
> Assistant Director:
>
> A person in charge of the non-educational programme, games, entertainment, etc. The programme and its operation should be subject to the Director's approval. A person in charge of camp management, food, cooks, custodian, sanitation, etc., subject to the Director's approval.
>
> Group Leaders (Teachers and student teachers):
>
> These people are directly responsible to the Director and his assistants.
>
> Counsellor/aides
>
> The secondary school students acting as counsellor/aides should be completely relieved of school assignments during their week at camp. They should be chosen from the secondary school which accepts children from the elementary school at camp that week, or at any rate drawn from all high schools.
>
> Administrators' report, (Appendix G)

Note has been made of the fact that the Director of the West Vancouver Outdoor School was not a teacher, but a veterinarian, albeit with an enthusiastic interest in outdoor education. However, it became evident that both, the teachers and the Administrators felt that the Director should be an educator, or person with teaching experience as well as an interest in outdoor education. In the section of the Teacher Interviews dealing with the topic of "Leadership", eighteen of the twenty-one teachers commented that the Director should have

knowledge and experience in teaching as well as in outdoor education (Table IV), while eleven teachers commented that the Director in this particular case was working hard to make the program a success, but seemed insecure in his position. The Student Teachers' report noted that:

> ... The Director should be an educator competent to enter any subject area and take over if necessary. He should be free to scout and develop new ideas and to identify potential new resource areas.
>
> Student Teachers' Report

These comments suggest the importance of the Director's role as an educational leader, and not just an Administrator. It would be dangerous to generalize from these comments to the extent that an Outdoor School Director must be a teacher, but it appears that he should be a person with teaching ability and experience.

Another element in the staffing of the outdoor school which received mention in the evaluative process was the role of the regular classroom teacher attending the outdoor school with his or her class. Eighteen of the twenty-one classroom teachers interviewed (Table IV) noted that teachers should have more in-service training prior to the outdoor school experience in order to clarify their role while at the school. Fifteen of the teachers noted that it took several days for them to understand their role in the outdoor school program, while sixteen of the teachers

felt that they could take a more active role in the program if they took a more active part in planning it. These comments are reinforced in the Administrators' report, which noted:

> Close liaison should be developed with class teachers to clarify:
> 1. The programme,
> 2. The teachers' role while in camp,
> 3. Responsibility for discipline of pupils.
>
> Administrators' report, (Appendix G)

The Administrators' report noted further:

> It is imperative that a close liaison between the schools and the camp should be established well in advance of the opening date. This will enable the school to integrate the programme with lessons at school, and provide for suitable follow up treatment after the return from camp. We envisage the camp as an outdoor extension of the school.
>
> In future, principals and teachers should be fully informed of the plan for scheduling of visits. This year many were not aware of the existence of the school until after some schools were booked. "Planning in detail should be completed well in advance of the first visit, and an in-service programme for teachers be held in advance - preferably on the site.
>
> Administrators' report (Appendix G)

Although the comment was not solicited, sixteen percent (16%) of the counsellor/aides thought that the participating teachers could help the instructional program by becoming more involved with their students. Counsellor/aides suggested that teachers tended to be observers in the Langdale program. Both of the student teachers voiced this same view in their report (see Appendix H). The following

quote indicates the student teachers' view on the role of the home room teacher:

> In project time ... the homeroom teacher should circulate throughout the lab area to talk to students individually. In this manner we would be much more at leisure to take interested students back to areas of interest, or into new areas altogether. In short, there would be more of us to "go around", and hence, everyone would be happier. Also, the students would probably feel much more at ease, and would probably produce more, if his teacher were nearby. ... Every teacher has something to contribute, ... he can inspire ... or help guide some students to use their own ideas.
>
> Student Teachers' report (Appendix H)

No direct evaluative material was obtained relating to other elements in the staffing of the program. It should be noted that one of the adjustments which had to be made "en course" in the program was the addition of a second cook to assist with the work load, and the provision of a nurse hired to be on duty daily.

D. Grouping of Students and Student Selection

As has been noted, the program was open to essentially all students in the seventh grade in the school district. All of the participating teachers considered this to be an appropriate grade level for this type of program. Eight of the twenty-one teachers noted that they would like to make the program available to the sixth grade, noting that the problems of boy-girl sexual relationships which are

emergent in the grade sevens, would not be as important among the sixth graders, (Table IV). All of the teachers involved in this program felt that two classes could be handled at once in a program of this type in this facility (approximately seventy to seventy-five students). However, six of the teachers noted that they would not want the total group size to exceed this number.

The Administrators' Report noted the effect of grouping on the social aspects of the program:

> The children responded to the mingling with young adults (counsellor/aides, staff and teachers). An informal out-of-the classroom basis established an excellent rapport which is difficult to obtain under regular school conditions.
>
> Administrators' Report
> (Appendix G)

The fact of a small teacher-student ratio meant that students could readily obtain assistance from a staff member. The availability of the staff to assist students was noted by ninety-seven percent of the students..

E. Equipment and Resource Materials

It has been noted previously that one of the special items of equipment provided for the outdoor school was a set of eighty complete rain outfits. While no direct evaluative comments were made about this clothing, it is worth noting that of the fifty-five operational days of this program, it rained on forty-nine days. This fact illustrates

the need for adequate clothing to provide for student comfort in a fied work-oriented program such as this. One hundred percent of the teachers interviewed commented on the quality of equipment available for use in student project work, while many of the teachers commented on the good available library resources (Table IV) It seems obvious that in a program of this type, with its emphasis on the activity method, and on student project work, that adequate equipment and library resources must be available to support such work.

F. Food

Food which is of low quality can probably have a most direct effect on the morale and attitudes of the partcipants in any residential program. Ninety-three percent of the students responding to the questionnaire rated the food at the outdoor school as "very good" or "good", while sixteen of the twenty-one interviewed teachers rated the food as "very good". It should be noted that West Vancouver is a high socioeconomic area, and so the students of this district are most likely accustomed to fairly high quality food.

It is an interesting aside to note that approximately four percent of the students attending had food allergy problems, and alternative foods had to be provided for them. This fact emphasizes the importance of the parent medical record forms for each student.

G. Recreation

Recreational activities are an important component of the non-academic time in any residential outdoor school program. This particular aspect of the program seemed to need improvement. Thirty-five percent of the students indicated that the recreational program needed improvement. Teachers, Administrators and students all suggested that the day-time recreational program needed a greater diversity of activities such as boating, riflery, archery, and swimming. However, eighty-four percent (84%) of the students rated the evening campfire program as "very good" or "good". The Administrators' Report states, "... the evening campfires ... must be rated as one of the better features of the camp." (Appendix G)

H. Daily Schedule and Timetable of Program

Previous comment has been made (Chapter three) concerning the need to provide a balance between "free" or "unstructured" time and scheduled instructional activities in the program of a Residential Outdoor School. The evaluative information provided some information regarding the schedule for this program. It is clear from earlier comments concerning the role of the classroom teacher in the program that these individuals wanted more involvement in planning the program, but that they saw their involvement as a function of their training for their role at the outdoor school. More specifically, eighteen of the twenty-one teachers recommended

more time for project work, a recommendation echoed by seventeen percent (17%) of the students (Table II). Some students commented that they liked the relatively longer periods of time for work.

I. Finance

The financial arrangements for the program represented a balance between support provided by the school district from the regular budget, and extra fees paid by the parents of participating students. All of the teachers noted that they were happy that the School Board did make funds available to students whose parents were unable to pay the special fee. Three of the twenty-one teachers involved thought that the School Board should pay everything, while eighteen thought that the financial arragements were suitable for a community such as West Vancouver. It should be noted that West Vancouver is a high socio-economic area and that few parents are likely to be unable to afford to send their children.

The Administrators' Report recommended that the School Board undertake an "... assessment of priorities ... as to monies spent and values accrued." (Appendix G). This question, however, enters into the question of the relative educational merits of the entire program as compared to other educational programs. That subject is not within the terms of reference of this study, although reference will be made to it in Chapter five.

## IV. SUMMARY

It can be seen that a considerable amount of information was gained regarding the operation of the West Vancouver Outdoor School during its short period of full-scale operation at the Langdale site. It is now necessary to attempt to extract from this experience any generalizable recommendations or guidelines which may be of value to future program designers, or which can form the basis for more systematic evaluation. This review will be the purpose of Chapter five of this study.

## Chapter 5

## A REVIEW OF THE WEST VANCOUVER OUTDOOR SCHOOL

### I. INTRODUCTION

"Those who fail to study history are doomed to repeat it", or so runs the old adage. The experience of the West Vancouver School District has possible importance to other educational authorities who may wish to develop similar programs of outdoor education. It should be noted, however, that this study does not attempt to compare outdoor education experiences to regular school experiences in terms of learning effectiveness or the attainment of certain educational outcomes. It would be dangerous to generalize too widely from the experience of the program which has been described in chapters three and four for several reasons. First, the program only operated on a full-scale basis for the four month period of this study. After defeat of a financial referendum by the rate-payers of the district, the outdoor school program, along with a great many other school district programs, services, and personnel, were eliminated. This is not, however, a direct reflection of the perceived worth of the outdoor school program per se. The Administrators' Report (Appendix G) raised the issue of the school district's relative priorities, but did not examine in depth the question of whether outdoor education ought to receive a higher priority than some of the district's other educational programs.

Second, the program operated in West Vancouver School District, a district which has a very high socio-economic level. Thus it may be difficult to generalize about the funding of this program compared to the manner in which similar programs, operated by poorer school districts would have to be funded.

Third, as has been pointed out (Chapter four), the staffing of this program was somewhat unique, in that the school director was not himself a teacher, but he directed an educational program which employed teachers, and which operated in the context of a public school system.

However, within these limitations I feel that some guidelines can be proposed for the further consideration of persons who are interested in developing outdoor school programs, or for the consideration of those interested in research into some of the aspects of residential outdoor education.

It shall be my purpose here to present these guidelines, and to review the experience which has been described in Chapters three and four in the light of the literature of outdoor education and related fields.

## II. REVIEW OF THE WEST VANCOUVER OUTDOOR SCIENCE SCHOOL PROGRAM AND PRESENTATION OF GUIDELINES

### A. Curriculum and Methodology

1. Objectives.

As has been indicated in Chapters three and four, the emphasis in the development of objectives for the West Vancouver program was on the academic outcomes, yet it was the interpersonal outcomes which received the greatest attention from the teachers, and from the Administrators. Fifteen of the twenty-one teachers interviewed commented that the social experience for students was the most valuable part of the program (Table IV). Gabrielsen (1965) has commented on the value of the group living aspects of a residential outdoor school program. It would certainly appear that the development of objectives for residential outdoor school programs should include the interpersonal objectives as well as the academic or cognitive objectives. This area is perhaps not as easily stated in objectives, especially in documents intended to convince parents or school officials. In general, more research would appear to be needed concerning the outcomes of residential or group living experiences in terms of students' interpersonal behaviours and skills.

In addition to the problem of formulating objectives to include the total range of anticipated outcomes, this review of the West Vancouver experience also highlighted the need to involve the participating teachers in the formulation of those objectives, and the need to communicate

objectives to all concerned. It is noteworthy that little attention has been paid in the literature to this question of who should formulate objectives for an outdoor school program, or of the importance of communicating the objectives, once developed, to all participants.

2. Curriculum

The focus of the West Vancouver outdoor school program was science, especially to those aspects of science related to the theme, "The Web of Life". While the Administrators' Report commented that this was an appropriate theme, and the results of the teacher interviews indicated that other areas of the curriculum should be included, it seems reasonable that an outdoor education program should concentrate on developing an awareness and understanding of various aspects of the natural environment. However, clearly science is not the only vehicle for this. Thus, while a particular outdoor school program may choose to focus on the area of science, as did this one, other curriculum areas could form the focus, or several could be integrated, especially around a suitable theme. This fact is supported in the definition of outdoor education chosen for this study (Hammerman and Hammerman, 1964, Chapter 1, page 2).

The choice of site for a particular program would also have an effect on the choice of a curricular focus

or theme for a program. Thus, a site with a good marine habitat might focus on the theme "Man and the Sea", while one in the inland forests might chose quite a different theme and subject matter emphasis.

3. Methodology

The West Vancouver outdoor school program employed the "Project Method" as one of its main instructional devices. The Administrators' Report stated that, "individual project work was perhaps the best part of the entire program." (Appendix G). The evaluation employed in this study does not attempt to compare the efficiency of the project method with other instructional strategies, and the literature of outdoor education provides no direct evidence concerning which types of instructional procedures are likely to be most effective in the outdoors. While direct, experimental evidence in favour of any particular instructional strategy in outdoor settings may be lacking, a number of authors make claims concerning the presumed benefits of various techniques. Balckwood (1966) for example, claimed that "... the ideas gained about their environment will have more meaning when pupils have learned them through direct observation based on investigations of their own." As was pointed out in Chapter two, some writers (Gabrielsen, 1965) have used classroom-based research studies of the "activity" method to support

the contention that this method should be the major method of instruction in outdoor schools. A careful examination of the claims made for various instructional techniques, especially as these claims are supported by research, might shed some light on the problem of which method or methods are most appropriate to out-of-classroom experiences. It is reasonable to propose, for consideration at least, that those methods which have been proven to be effective in classroom settings are often likely to be effective in the outdoors. Certainly this assumption lends itself to investigation, but it is likely that a comparison of different methods in the outdoor setting would prove more valid than would the comparison of the same method in the classroom as opposed to the outdoors.

B. The Site

The literature of outdoor education has tended to focus on the more mechanical aspects of site selection and development: size, location, buildings, etc. Little attention has been paid to some of the value and attitude questions which can be emphasized or enhanced by particular sites, and site facilities, or conversely, to the negative values and attitudes which may be conveyed by a site or its facilities. The importance of a site to an outdoor school program is clearly illustrated in this review of the West Vancouver experience. The comments of the Administrators, Teachers,

and Student Teachers all refer to the lack of natural resources on the site itself. In addition, mention was also made of the lack of "a sense of isolation" in the teacher interviews.

Leo Marx (1973) has described the unique values associated respectively with the wilderness, the urban, and the rural landscape. The Langdale site presented a strange mixture of these values, --- it was forested, but not a wilderness, being located directly next to the "urban" ferry terminal facility with its automobile traffic, pavement and city lighting. While the site fronted on the seashore, it offered only a very limited variety of marine life, and its terrestrial biology was amlost devoid of diversity, at least on any major scale. The site was small, to the point where the use of the site by a large number of children caused actual ecological impact on the site's biological resources. Clearly, size of site, ecological diversity, and location are all factors which must be considered in the selection of a site for a program where the emphasis is upon the natural world. Alternatively, if the focus of the program was on man's urban environment, then quite a different facility might be used.

In regard to the physical facilities available on the site, little information was obtained in this study which would be useful in developing criteria or guidelines for site selection or development. Mention was made of the fact that

since the interpersonal aspects of the group living experience were regarded as an important outcome of the program, the living accommodation should further this objective. This appears to indicate that housing units for small groups of ten or so students are preferred over a large dormitory. Twelve of the twenty-one teachers interviewed indicated this preference for small group accommodation (Table IV), while the Administrators' Report also supported this. Smith (1963) and Mand (1967) noted this choice between small group housing versis large dormitories, but commented on it only in terms of relative costs and staffing needs, and not in terms of the effects of housing units on the social nature of the outdoor school experience. Mand (1967) did note the need for a dining hall which should be large enough to seat the entire school complement at one time for meals, and other meetings of the whole group. The Langdale site provided a suitable dining hall, although it was not well heated, but the students were accommodated in larger groups. Clearly, an outdoor school in an organized "camp" facility must provide basic areas for student work: a laboratory, work room, or resources area.

One question which did arise in this study in regard to the physical facilities at an outdoor school site relates to the housing of teachers. Clearly it is possible to house teachers with students, or at least in close proximity to them, in the same building perhaps. Alternatively, teachers can be

provided with separate quarters. The comments of the teachers and administrators involved in the program indicate their clear preference for separate quarters, and even for a separate recreation area. The Administrators' Report noted the intense demands made on the staff of an outdoor school, and even suggested that the permanent teaching staff of the school be given a break in the middle of the term so they could get completely away from the school site. This desire for separate living quarters would seem to reflect this intensity. Little attention is given to this subject in the literature.

C. The Staffing of an Outdoor School Program

1. The "Permanent" Staff of the Outdoor School.

This study involved three main types of personnel: the staff teachers at the school, and other support staff members: cooks, nurse, etc.; the regular classroom teachers accompanying their students to the outdoor school; and the volunteer student aides who were recruited from the Secondary School to serve as aide/camp counsellors.

The West Vancouver program served to demonstrate some of the complex questions which relate to the balance between the roles of "regular" classroom teachers and outdoor education "professionals". It also served to indicate the complex relationship between professional teachers per se and qualified people who are nevertheless

not professional teachers (e.g. the director of the outdoor school in this program).

Some of the major issues raised in this study were:

a. What should be the respective roles of the regular classroom teacher and the professional full-time staff teachers at the outdoor school;

b. What should be the balance between program elements planned and operated by the staff of the outdoor school and those educational activities developed by the regular classroom teacher. Another way of stating this would be, "what input should the regular classroom teacher have in planning the one week program at the outdoor school?"

c. Should the regular classroom teacher always accompany their students to the outdoor school.

Some attention has been paid in the literature to these questions. Gabrielsen (1965) noted the distinction between the role of the classroom teacher as "observer" versus the role of the teacher as active participant while at the outdoor school. It is a fact that many teachers probably feel that they do not possess much knowledge of the subject areas often given emphasis at an outdoor school, such as field biology, outdoor recreation, and so on. This insecurity may lead the regular teacher to retreat into the role of passive "observer" while the professional

outdoor educators on the staff of the outdoor school "run" their students through the program. Gabrielsen (1965) has discussed the advantages for the classroom teacher and for the students of both roles, i.e., that of active participant versus observer (see Chapter 2, p. 17). It is clear from the teacher interviews in this case (Table IV) that the teachers desired a more active role. Sixteen of the twenty-one teachers indicated that they could take a more active role in the program if they had a voice in planning it. On the other hand, three of the teachers interviewed raised the question of whether or not the classroom teacher should have to go. It is interesting to note that both, the student teachers and the aide/counsellors in their comments on the program noted the key role of the regular classroom teachers and emphasized that they would like them to be in a less passive position in the program (Tables III and VII). The student teachers' report phrased this concern as follows:

> They (the classroom teachers) are the key and we should be resources to them. They should be the leaders, not observers.
>
> (Student Teachers' Report, Appendix H)

In another fashion, the Administrators' Report (Table VI and Appendix G) echoed this sentiment:

> Close liaison between schools and the camp should be established well in advance of the opening date.

> This would enable schools to integrate the program with lessons at the school, and to provide for follow up. The outdoor school should be an extension of the school.
>
> (Administrators' Report, Appendix G)

It is possible that the feeling of insecurity on the part of some classroom teachers might be reduced or eliminated if the program of the outdoor school was less "science-centered" and was more truly inter-disciplinary in nature. This would allow teachers of art, music, socials, or the language arts to feel that they had something both to contribute and to gain in terms of the outdoor school program.

As to the question of whether or not the classroom teachers should be "required" to attend with their classes, it would seem obvious from the stress placed on the social outcomes of the experience that any teacher who did not attend with his or her class would not benefit from these interpersonal learnings in a direct sense of changing or clarifying their relationship with students. However, Gabrielsen (1965) feels that the classroom teacher should not be "forced" to attend if they are not interested in "camping". I would hope that if an outdoor school program were fully successful, the question of "compulsion" would not even be considered.

In a number of the evaluative reports on the program,

mention was made of the need for better in-service training to be given to the regular classroom teacher especially before the program begins. Because of the speed with which the School Board decided to implement this program, no time existed for the development and operation of a Teacher In-Service Training Program prior to the operation of the school. Thus many classroom teachers attended the school knowing little or nothing about outdoor education. The Administrators' Report stressed this need for in-service training to clarify the program, the role of the classroom teacher in it, and the separation of responsibility for the discipline of students between the outdoor school staff and the regular teachers (Appendix G).

Finally, some note should be made of the role played by the counsellor/aides in the West Vancouver program. These aides were recruited from the students in the Community Recreation program at the West Vancouver Secondary School. They were senior students, thrust into the new role of "teacher" or at least aide. The Administrators' Report noted the healthy benefits gained by this mixing of young and older students, to both groups. The Administrators' Report in fact asked why only students from the recreation program were chosen for the experience. In the conventional structure of school districts, secondary schools are physically separated from elementary schools. The outdoor

school program allows for some breakdown of this separation of the two student groups, perhaps with some mutual benefits.

D. Students

It has been noted that this program involved only students of the seventh grade. While the comments of the teachers and administrators involved suggested that this was an appropriate grade level for the program, some suggestion was made that grade six might be equally appropriate. In fact, the operation of this program gained no evidence concerning the question of which age/grade level of student can benefit most from this type of experience. Smith (1963), Hammerman and Hammerman (1964) and Gabrielsen (1965) all report that grades six and seven are more frequently involved in outdoor school projects than any other grades. This does not, however, suggest that these grades are necessarily the "optimum" grades for the experience. It is likely that, depending on the form of the program, an appropriately designed outdoor school program can benefit any grade level of student. Obviously, residential programs involving very young children of the primary grades (age six to nine years) must be operated in quite a different fashion from those for teenagers.

Sufficient comment has been made concerning the social or interpersonal aspects of the outdoor school program to render it unnecessary to dwell on the matter of student

grouping here. Obviously, the size and nature of the group should be selected to promote this important aspect of the residential outdoor school experience. Gabrielsen (1965), in discussing the attributes which a teacher involved in residential outdoor education programs should possess (in addition to those of any good classroom teacher), states that the outdoor school teacher should have:

> An ability to work effectively with groups and to provide children's groups with democratice experiences. ... Skill in working with varying size groups in an informal setting and in the outdoors involving techniques of 'group unstructuring'.
>
> (Gabrielsen, 1965)

The results of the West Vancouver program's evaluation certainly affirm the concept that the total number of students at a residential camp at any one time should not exceed eighty, (Donaldson, 1955). The results do not, however, permit drawing any conclusion about an optimum size, or about the relationship between area of site, nature of site, nature of buildings, staffing, and the number of students which can be accommodated. The staffing ratio suggested is generally between 1:7 to 1:15, Depending upon the nature of the activity.

The information obtained from the West Vancouver program experience did not provide any direct data concerning relationships betwen the parents of the students and the outdoor school. It seems fairly clear that parents must be informed of the nature of the program, and about its costs, because they

are expected to permit their children to attend, they are asked to provide them with basic clothing and equipment, and to pay an extra fee to accommodate them at the outdoor school. Whether or not parents will support such a program will most likely depend on the degree to which they understand the program and accept its worth. Thus, clear and open channels of communication between those organizing the program and the parents are necessary.

E. Equipment and Resources

Very little is said in the literature in a general or conceptual sense about the equipment needs of residential outdoor education. From the experience of the West Vancouver program the equipment would appear to fall into two general categories: equipment needed to support the academic or recreational aspects of the program, and equipment needed to provide for student safety and comfort. It is probable that very little is said in the literature in a general sense about equipment because equipment needs will vary greatly from program to program, depending upon the location, season, and curricular emphasis of the program. Obviously, the type of equipment needed to support a program with a marine biology focus will be quite different from that needed to support a program with a winter outdoor recreation focus. Given the emphasis in the West Vancouver program on student-developed project work, it was essential that science equipment,

sufficient to support projects be available at the site. Students noted (Table II) that they liked using new equipment, although fourteen teachers commented that better laboratory facilities were needed, but twelve of the teachers commented that the equipment at the outdoor school (especially microscopes) was better than that in the regular classrooms (Table IV). The question of equipment needed to support the comfort of students while engaged in field work is important, and it has been neglected in the literature to a large extent. The observation made in Chapter four concerning the large percentage of rainy days during this program is a clear indicator of the need for equipment which allows students to work outdoors in relative comfort, without parents having to provide expensive and fairly specialized equipment or clothing. The Canadian climate in winter especially can be severe, and it is certain that the morale of students will be effected if they are uncomfortable, cold or wet, during field excursions. Little direct comment was made by the various program reviewers concerning this subject. This is probably a reflection of the excellent way in which the rain clothing provided by the program protected students from the rain and cold. Had students been uncomfortable it seems likely that more direct comment would have been made about this area of concern.

Marksberry (1963), Gabrielsen (1965), Torrance (1967), amd Cowell (1968) all emphasize the need for science equipment

materials for student work, and good collections of resource reading materials. It would certainly appear that careful consideration must be given during the planning stage of an outdoor school program to provide adequate equipment for the program, in terms of program objectives and student comfort and safety.

F. Food

As has been pointed out in Chapter two, there is virtually no direct reference to the question of food in the program of an outdoor school, except the general recommendation that nutritious food is important, and the comment by Smith (1963) to the effect that students can have an important learning experience by helping to plan the menu. The comments of the various evaluators appear to indicate that the food provided at the West Vancouver program was excellent, but this information per se provided little in the way of planning guidelines or ideas for future operators of outdoor school programs. I am of the opinion, that the food consumed by students and staff at an outdoor school could be an active, as opposed to a passive or supportive element of the program. The popular media have contained abundant recent mention of the poor food habits of Canadians, and especially of the young, with their receptivity to "junk foods" and "fads". Outdoor schools, with their traditional "hamburgers, hot dogs and marshmallows" may be lending tacit support to these poor food

habits. It may be possible that the food eaten at outdoor school could emphasize good nutrition in terms of alternatives: low sugar meals, meals with higher fibre content, meals without foods containing additives, foods from the natural area chosen as a program theme, - edible plants of the area, foods of the native peoples of the area, sea foods, and so on. This concept has been noted by McClaren (1975) , McClaren, Milton (1975). "Environmental Education: Issues and Challenges."

Proc. Nat. Environ. Educ. Conf. Regina, Sask. 1975 (in press)

McClaren, (Milton) and Whitney, (Alan) 1975,

("The Outdoor School: Realizing its Potential").

The B.C. Teacher, May 1975,

who comment on the potential importance of foods as part of the overall learning environment of outdoor schools.

G. Schedule

The timetable of an outdoor school program can have considerable importance in furthering the objectives of the program, both in the cognitive and affective areas. The general comment contained in the literature is the suggestion that teachers and students should participate (with the "professional" outdoor school staff) in the construction of a program time-table. Relatively little attention is given to the actual nature of the timetable or schedule, except for the comment of Torrance (1967) to the effect that teachers are timetable dominated. Hammerman and Hammerman (1964) and Gabrielsen (1965)

have both suggested that the outdoor school may allow more time for various activities and that the schedule at outdoor school may be more "relaxed" than that in the regular school setting. McClaren (1975) and McClaren & Whitney (1975) have commented that the flow of experiences in an outdoor school schedule may be very important, with some experiences (for example those which help to build group functioning or teamwork) may be critical at the outset of the week-long program. McClaren and Whitney (1975) also noted that many teachers seem to take their regular school schedule to the outdoor school, creating in effect "school outdoors". Both, teachers and students (Tables II and IV) noted the need for more time for student project work, while students also asked for more "free" or unstructured time in the West Vancouver outdoor school program. It would appear necessary for teachers and others who are developing outdoor school programs to think creatively about the format of the schedule and sequence of events at the school, not merely recreating the regular school timetable of one-hour or forty minute blocks, which are often arranged as much for efficiency in personnel management as for their educational merits.

## H. Recreational Elements in the Outdoor School Program

The West Vancouver outdoor school program had the benefit of the services on a full-time recreation worker on the staff of the outdoor school. Inspite of this fact, improvements

in the recreational program were asked for more frequently, - thirty-four decimal seven percent (34.7%) of respondents, - by students than were improvements in any other area. If as seems to be indicated by the results of the review of the West Vancouver experience, more free time and a more open-structured program is indicated for the timetable of an outdoor science school, then appropriate recreational activities become an important element in the resources of the program.

It is important to note that there is perhaps an artificial tendency to separate the recreational-social aspects of the program from the academic-cognitive aspects. Some recreational skills and pursuits can be an important "doorway" to other activities, including the academic activities. For example, snow-shoeing and cross-country skiing may open up an entire new area of winter studies in the outdoors, --- wildlife in winter, winter climate, plant adaptations to winter, and so on. Without these skills, direct observational access to the winter environment is closed.

## I. Financial Considerations

The present study of the West Vancouver outdoor school experience provided relatively little information concerning the financing of outdoor education. Mand(1967) indicates the position taken by most authors concerning financial responsibility for outdoor education, namely that it should be a "shared" responsibility, with the school authority paying

for those aspects of the program which would normally be those of the school, and with the parents paying for those obligations normally assumed by the family, - housing, food, and normal clothing. As has been mentioned above, specialized clothing for student comfort in inclement weather or under winter conditions is probably the responsibility of the outdoor school program. Most of those involved in the various evaluative reports on the program indicated general satisfaction with this division of responsibility between the parent/family and the school authority. Of course, because of the generally high income of West Vancouver families, few problems were seen in terms of families being unable to contribute any sort of extra fee of the outdoor school program. In poorer districts this would certainly be a problem.

There is one danger in "special financing" for outdoor education, which the author wishes to indicate at this time. If outdoor education experiences such as the Residential Outdoor Science School are ever to be seen as integral parts of the educational experience of most children, then as long as these programs are financed by special fee or levy, they are always in jeopardy of being viewed as a "fringe" or "frill", - clearly extra to the "normal" functions of the school. The author rejects this position that outdoor education is a frill and notes this danger in fee or levy financing. In the West Vancouver experience this point has a special meaning.

In December of 1969 the defeat of a financial referendum for the school district meant a cutback of all services which were seen as extra to the normal concerns of education and as peripheral. The outdoor school program was one of the programs cut.

J. Evaluation of the Program

As was noted in Chapter two, there are very few evaluative devices designed specifically to evaluate either the operation or the outcomes of outdoor education. The manner in which the evaluation of this program was conducted emphasized the operational aspects of the program, - not the educational outcomes. This fact may have been due in part to the program being seen as in its first stage, a trial or implementation stage. As it turned out, the district-wide program was eliminated after the referendum defeat, so there were no further cycles of the program.

It should be possible to devise instruments to evaluate the educational outcomes of outdoor school programs, in terms of both content and skill learning. It is even likely that some existing tests of science competency could be used to evaluate the outcomes of outdoor science education. The evaluation of changes in values or attitudes toward conservation, or man-nature relationships in general, is more difficult. This is an area which needs further research, as is the question of the comparison between the efficiency of concept or fact

acquisition in an outdoor school program as compared to that in the regular classroom.

One of the issues raised by the present review is that of the influence of the evaluator's position on his comments. Unfortunately, while teachers, outdoor school staff members, administraors, and students, all covered some of the areas in their comments on the program, there was no close parallelism between the questions asked (or dealt with on their own initiative) by the various groups. This fact makes comparison beween their positions difficult, but it also illustrates clearly the need to plan for evaluation as an integral component in the design, implementation, and operation of any new program. The Administrators' Report (Appendix G) raised the question of "values obtained for monies spent" in consideration of the outdoor school program, but did not attempt to deal with that issue, as beyond their terms of reference. The teachers' interviews stressed the need for more communication between participating schools and teachers and the outdoor school staff during the planning and preparation phases of the program. To each group, certain issues emerged as central to their particular concerns, from their individual vantage points. Evaluation strategies need to be designed which seek out common concerns and which minimize personal bias or "positional effects" while still not neglecting factors which clearly were of concern in the operation of the program and in its design.

## III. SUMMARY

Because this review of the West Vancouver program makes no attempt to compare the educational effectiveness of outdoor education with classroom education, or to assess the educational outcomes of the outdoor school program in specific science learning, it may appear to neglect some broad questions concerning the value of the experience, or at least of its perceived worth. The student questionnaire survey (Table II) asked students to rate their personal enjoyment of the experience. Ninety-three decimal six percent (93.6%) of the students rated the experience as "very good" or "good"; ninety-eight percent (98%) of the students responded "yes" to the question, "Would you go again?" - No argument is being made here to the effect that merely because an experience is seen by students as enjoyable, it has educational merit, but neither should the students' opinions of the experience be neglected, - they are the "consumers" of the educational program.

The major contribution of this study is as a case history of the design, implementation, and operation of an Outdoor Science Education program in a residential camp setting. From a review of this case history, and a consideration of the existing literature of outdoor education, it may now be possible to propose a list of guidelines for the consideration of future program developers or educational researchers interested in

a more controlled analysis of various questions in the field of residential outdoor education.

Chapter six will present a list of such guidelines.

TABLE II: SUMMARY

Table II presents a summary of the findings of the Questionnaire Survey completed by all students who attended the Outdoor School in the Fall of 1969. The table shows clearly that the majority of the students, ninety-three decimal six percent (93.6%) rated the program high in "personal enjoyment", and that ninety-eight percent (98%) would attend again. Most popular instructional areas were the marine, followed closely by the trip to the Port Mellon Pulp Mill, where the pollution effects were studied first hand. Students indicated a need for improvement, especially in the recreational elements of the program.

TABLE II

## SUMMARY OF STUDENT QUESTIONNAIRE RESPONSES

### PERSONAL ENJOYMENT

| | | |
|---|---|---|
| Very good | 68.6% | 93.6% |
| Good | 25.0% | |
| Average | 4.8% | |
| Fair | 1.7% | |
| Poor | .1% | |

### ENJOYMENT IN COMPARISON TO OTHER CAMPING EXPERIENCE

| | |
|---|---|
| More | 69.3% |
| Same | 21.7% |
| Less | 9.0% |

Misc. Comments

- Knew the people in my cabin
- Got to know my friends better
- More to do
- Learned more, had as much fun

### INSTRUCTIONAL AREAS

Rated on a point scale
2800 point = good rating

| | |
|---|---|
| Marine | 2712 |
| Forest | 2634 |
| Sheep | 2390 |
| Bees | 1942 |
| Poultry | 2666 |
| Pulp Mill | 2704 |

N.B. Overall rating high, students were excited about all aspects of the program except for the bees and sheep. The rating in these two areas was lower due to many students giving low point value in their responses.

### IMPROVEMENTS NEEDED

| | |
|---|---|
| -Improve recreation | 34.7% |
| -Add other instructional area | 22.7% |
| -More time for projects | 17.2% |
| -Improve program on Monday and Friday | 12.0% |
| -Improve instructional area | |
| - Marine | 4.2% |
| - Forest | 6.3% |
| - Farm | 8.1% |

### NUMBER OF STUDENTS WITH PREVIOUS CAMPING EXPERIENCE

72% of the students in West Vancouver had previous camping experience. The national figure for the U.S.A. in 1967 was 9% (Mand, 1967).

### WOULD YOU GO AGAIN?

| | |
|---|---|
| YES | 98% |
| NO | 2% |

### SAMPLE COMMENTS

- you bet
- anytime
- fantastic
- ✓✓✓✓✓
- best time of my life

TABLE II (con't.)

| SUMMARY OF STUDENT QUESTIONNAIRE RESPONSES | |
|---|---|
| STRONG POINTS OF THE PROGRAM | SAMPLE COMMENTS |
| 1) METHOD OF INSTRUCTION<br>97% of the students feel they learn best by indirect instruction, and the program provided for them in this regard. | - liked using new equipment<br>- enjoy projects/and choosing same<br>- like the freedom<br>- like long periods of time to work on things |
| 2) MEALS PERCENTAGE<br>Very good 72.5<br>Good 20.6 } 93.1<br>Average 5.8<br>Fair 1.1<br>Poor 0 | - excellent<br>- didn't expect this<br>- better than any camp I've been to<br>- don't eat like this at home |
| 3) CAMPFIRES PERCENTAGE<br>Very good 51.8<br>Good 32.2 } 84<br>Average 9.2<br>Fair 5.1<br>Poor 1.4 | - really enjoyed them<br>- the boys didn't fool around like they do in music class<br>- learned to play my guitar<br>- learned lots of new songs |
| 4) TEACHER/STUDENT RATIO<br>99.7% of the students felt they could get help whenever they needed it. | |
| 5) COUNSELLOR/AIDES PERCENTAGE<br>Very good 55.3<br>Good 28.6 } 84<br>Average 9.7<br>Fair 5.4<br>Poor .3 | - excellent<br>- very well trained for their job<br>- lots of fun<br>- sometimes too bossy |

TABLE II (con't.)

| SUMMARY OF STUDENT QUESTIONNAIRE RESPONSES | |
|---|---|
| STRONG POINTS OF THE PROGRAM | SAMPLE COMMENTS |
| 6) DUTIES<br>Very good 24.6<br>Good 37.8<br>Average 29.1<br>Fair 5.4<br>Poor 3.1 | - we should be responsible<br>- lots of fun<br>- have to do them sooner or later<br>- don't expect others to clean up after us<br>* A number of students felt the duties were good, but thought a janitor should clean the washrooms |
| 7) RULES PERCENTAGE<br>Very good 24<br>Good 39<br>Average 25.3<br>Fair 8.5<br>Poor 2.8 | - many commented on the trust that was put in them and appreciated this<br>- were common sense<br>- were for our safety<br>- were none<br>- you have to have some rules |
| 8) ATTENDING CAMP WITH ANOTHER SCHOOL<br><br>Those students that had this opportunity were positive about this aspect of the program.<br><br>Those students that didn't have this experience were overwhelmingly against the idea. | - made new friends<br>- understand people better<br>- a great many positive comments. |

TABLE III

SUMMARY OF COUNSELLOR/AIDE QUESTIONNAIRE RESPONSES

STRONG POINTS OF THE PROGRAM WITH RESPECT TO THE COUNSELLOR/AIDES' ROLES

1) They were part of the staff and treated as such by both the professional staff and students.

2) The role gave them a feeling of responsibility.

3) It was an excellent learning experience for them.

IMPROVEMENTS NEEDED WITH RESPECT TO THE COUNSELLOR/AIDES' ROLES

1) In-service training with staff and teachers would be beneficial.

2) They should be given more opportunity to help in the instructional part of the program. As one student said, "Counsellor/aides should be part of the teaching program, they should spend more time getting to know the children, not by just accompanying them, but by helping them. Basically, counsellor/aides offer a valuable reserve of energy and knowledge which could be used more effectively."

3) Homework should not be assigned to be done while counsellor/aides are doing this job. Counsellor/aides felt the teachers who did this were unfair, and mainly that it was unnecessary.

IMPROVEMENTS NEEDED (cont.)

4) Teachers should be encouraged to allow them to participate. Many had difficulties getting released, especially if they were only average academic students. The counsellor/aides felt that the experience was far more important than the week missed from classes.

IMPROVEMENTS NEEDED IN THE PROGRAM THAT DIDN'T DIRECTLY AFFECT THE COUNSELLOR/AIDES' ROLES

1) Classroom teachers should be more involved with their students and not be observers.

TABLE IV

SUMMARY OF FINDINGS OF TEACHER INTERVIEWS

This table presents a summary of information obtained in interviews with the twenty-one attending classroom teachers. Table V shows the difference between the rating given by students to the main instructional areas and that given by teachers to the same areas. In general, both, teachers and students rated the marine, forest, and pulp mill study areas above those at the farm site. Teachers noted poor transportation arrangements and it may be that the low rating given to the farm was in part due to the distance between the farm and the outdoor school site. Of particular note was the importance given by teachers to the outdoor school as a social or interpersonal experience. Teacher comments echoed the desire of students for more time for independant project work. Teachers also noted the inadequacy of the site.

TABLE IV

SUMMARY OF TEACHER INTERVIEWS

**OUTDOOR SCIENCE SCHOOL AS AN EDUCATIONAL EXPERIENCE**

| RATING | FREQUENCY | PERCENTAGE |
|---|---|---|
| Excellent | 8 | 38 |
| Valuable | 12 | 58 |
| Questionable | 1 | 4 |

COMMENTS

- 6* must expand and continue
- 1* if it doesn't continue someone had better examine his conscience
- 3* learned more in 1 week about my students than in the previous 2 months, six weeks, month
- 6* extremely important for science instruction

**OUTDOOR SCIENCE SCHOOL AS A SOCIAL EXPERIENCE**

| RATING | FREQUENCY | PERCENTAGE |
|---|---|---|
| Excellent | 14 | 67 |
| Valuable | 7 | 33 |
| Fair | | |
| Poor | | |

COMMENTS

- 15* most important aspect of the program
- 12* student relationships improved
- 11* develops personal independence and responsibility
- 8* total involvement in living, sleeping and eating together is good
- 7* better student/teacher relationships evolved
- 6* some discipline problems completely disappeared. Amazing! (3*)

**COUNSELLOR/AIDES**

| RATING | FREQUENCY | PERCENTAGE |
|---|---|---|
| Very good | 3 | 16 |
| Good | 14 | 67 |
| Adequate | 4 | 17 |

COMMENTS

- 18* should not be expected to do school assignments when providing this worthwhile function.
- 11* should have leadership training
- 5* should meet with the teachers beforehand

* Number of teachers commenting

TABLE IV (con't.)

## SUMMARY OF TEACHER INTERVIEWS

### EVALUATION

PROGRAM OF INSTRUCTION

| AREA | RATED ON A POINT SCALE MAXIMUM POINT = 105 |
|---|---|
| Marine | 75 |
| Forest | 102 |
| Sheep | 49 |
| Bees | 15 |
| Poultry | 37 |
| Pulp Mill | 97 |
| Project work | 97 |
| Recreation | 62 |
| Library & Equipment | 100 |
| Campfires | 97 |

Graph: The sum of points given by the teacher rating each area on a point scale of 0-5. Maximum points any area could receive would be 105.

### COMMENTS

11* The programme should be broadened to include other subject areas
18* More time needed for work on projects
14* Schools must be involved in planning to take full advantage of the experience
11* Science teacher made this comment
18* In-service preparation needed
12* Farm must be improved
3* Scrap farm and make a field trip to a good farm back in school
6* Some alternatives needed for marine study when the tides are not right
13* Develops knowledge in Natural Sciences
11* Gives insights into relationships in nature
9* Improved attitude of some students to science back in school
6* Good library resources
12* Better microscopes and science equipment than in the schools

SITE SELECTION

| RATING | FREQUENCY | PERCENTAGE |
|---|---|---|
| Very good | | |
| Good | | |
| Adequate | 3 | 15 |
| Poor | 18 | 85 |

13* On site resources very poor recommend locating a better site
8* Not isolated enough
12* Program flexibility limited because of distance to the resource areas

* Number of teachers commenting

TABLE IV (con't.)

SUMMARY OF TEACHER INTERVIEWS

LEADERSHIP:

| | |
|---|---|
| 18* | The director should have knowledge and experience in teaching as well as in Outdoor Education |
| 18* | Teachers should have in-service training to clarify their role |
| 15* | It took 2 - 3 days for teachers to understand their role and get with it |
| 11* | The director is working extremely hard to try and make the program a success, but seems to have difficulty in identifying the problems. He seems insecure in his position |
| 9* | The authority chain must be more clearly defined |
| 16* | Teachers could take a much more active part in the program if they took part in the planning of it |
| 3* | Should teachers have to go? |
| 2* | Didn't feel I was really needed |
| 6* | Director should be a person who is capable of getting along with people |

* Number of teachers commenting

TABLE IV (con't.)

SUMMARY OF TEACHER INTERVIEWS

| EVALUATION | | | | | COMMENTS |
|---|---|---|---|---|---|
| FACILITIES | | | | | |
| DINING AND KITCHEN | | | | | 6* Would be good if the area was heated |
| RATING | FREQUENCY | | PERCENTAGE | | |
| Very good | 4 | | 19 | | |
| Good | 8 | | 39 | | |
| Adequate | 9 | | 42 | | |
| Inadequate | | | | | |
| SLEEPING ACCOMMODATIONS | | | | | 12* Smaller sleeping groups would make the experience more profitable |
| RATING | FREQUENCY STUDENT | FREQUENCY STAFF | PERCENTAGE STUDENT | PERCENTAGE STAFF | 4* Too crowded |
| Very good | | | | | 8* Counsellor/aides could handle small groups better |
| Good | | | | | 7* Better accommodations for the teachers |
| Adequate | 13 | 16 | 61 | 78 | |
| Inadequate | 8 | 5 | 39 | 22 | |
| INSTRUCTIONAL FACILITIES | | | | | 4* Recreation hall good |
| RATING | FREQUENCY | | PERCENTAGE | | 14* Better laboratory facilities needed, more room for project work |
| Very good | | | | | |
| Good | 4 | | | | |
| Adequate | 12 | | | | |
| Inadequate | 5 | | | | |
| FOOD | | | | | 1* Not enough |
| RATING | FREQUENCY | | PERCENTAGE | | 20* Very positive comments<br>Excellent preparation<br>Hot lunch good<br>Imaginative meals<br>Good quantity and quality |
| Very good | 16 | | | | |
| Good | 4 | | | | |
| Adequate | 1 | | | | |
| Poor | | | | | |

* Number of teachers commenting

TABLE IV (con't.)

| SUMMARY OF TEACHER INTERVIEWS | | | |
|---|---|---|---|
| **EVALUATION** | | | **COMMENTS** |
| TRANSPORTATION | | | |
| RATING | FREQUENCY | PERCENTAGE | 15* Hire a truck<br>3* Do something |
| Very good<br>Good<br>Adequate<br>Inadequate | 21 | | |
| FINANCES | | | 21* Were pleased that noone was prevented from going for financial reasons<br>18* Thought arrangements were satisfactory for a community such as West Vancouver<br>3* School Board should pay everything |
| GRADE LEVEL AND NUMBER | | | 21* Thought grade seven was an appropriate grade<br>8* Although grade seven was appropriate, would like the experience for the grade sixes. There wouldn't be as many boy/girl relationships to contend with.<br>21* Two classes works well<br>6* Wouldn't want any more |

* Number of teachers commenting

TABLE V

A Comparison of the Ranking of Elements of the Outdoor School Program between students and Participating Teachers.

| PROGRAM ELEMENT | TEACHERS | STUDENTS |
|---|---|---|
| Marine Studies | 3 | 1 |
| Forest Studies | 1 | 4 |
| The Pulp Mill | 2 | 2 |
| The Farm: Bees | 6 | 6 |
| The Farm: Sheep | 4 | 5 |
| The Farm: Poultry | 5 | 3 |

TABLE VI

SUMMARY OF ADMINISTRATORS' REPORT

This table presents in summary form the major areas of strength and weakness identified by the School Administrators' Committee in their report to the School Board. As in the teacher interviews, the Administrators noted the importance of the social or personal and interpersonal aspects of the program. (Points 6, 9, 10, 11 and 12). The Administrators noted the inadequacy of the site itself (Point 11, under "Improvement needed"), and echoed the recommendations of the teachers for more project time ("Improvements, #6) and for a more diverse academic program ("Improvements, #7).

TABLE VI

SUMMARY OF ADMINISTRATORS' REPORT

| STRONG POINTS OF THE PROGRAM | IMPROVEMENT NEEDED |
|---|---|
| 1) The program in general was good and in keeping with the theme "The Web of Life".<br><br>2) Provided an opportunity for students to increase their scientific knowledge by problem solving.<br><br>3) Encouraged students to appreciate the beauties of nature.<br><br>4) Encouraged students to develop a sense of awareness to natural phenomena.<br><br>5) Exposed students to critical relationships which control the ecological balance of nature.<br><br>6) Co-operative atmosphere made many expected student behaviour problems disappear.<br><br>7) Increased interest and improved attitude toward science noted in many students upon return to school.<br><br>8) In many cases, students were noted to display a continuing improvement of attitude toward science upon return to school.<br><br>9) Program stimulated imaginative creative and independent effort in harmony with their peer group and a friendly interested group of instructors. | "Although the question of priority was avoided by the committee as not being within the terms of reference, it should be noted that two of the five members voiced opinions which would inddicate disapproval of continuing the Outdoor Science School without massive readjustments."<br><br>1) Close liason between schools and the camp should be established well in advance of the opening date. This would enable schools to integrate the program with lessons at the school, and provide for follow up. The Outdoor Science School should be an extension of the school.<br><br>2) Planning and an in-service training session (preferably on site) should be done to clarify:<br>a) program<br>b) teacher's role<br>c) responsibility for discipline of pupils<br><br>3) Principals and teachers should be involved in planning and scheduling of visits.<br><br>4) Marine Area of Instruction because being off site prohibited involvement and limited project activity.<br><br>Beach at site poor. |

TABLE VI (con't.)

| SUMMARY OF ADMINISTRATORS' REPORT | |
|---|---|
| STRONG POINTS OF THE PROGRAM | IMPROVEMENT NEEDED |
| 10) Provided a group living experience which is comparatively rare in life.<br><br>11) Forced children to draw on their own resources for entertainment Campfires excellent.<br><br>12) The informal out-of-the-classroom situation helped establish an excellent rapport between students and adults (teachers, counsellor/aides and staff) which is difficult to obtain under regular school conditions.<br><br>13) Those teachers who enjoyed the experience could only have had an increased influence on their classes upon return to the classroom.<br><br>14) Cooking facilities good.<br><br>15) Duties good.<br><br>16) Counsellor/aides on the whole did a fine job.<br><br>17) Forest area of study was very good - on site<br>- offered variety<br>- independent study possible<br><br>18) Pulp Mill gave children a chance to witness pollution.<br><br>19) Individual projects were perhaps the best part of the entire program. | 5) Farm: Lecturing as a method of teaching should be kept to a minimum. An approach that involves seeing, feeling and doing is more effective.<br>The "farm" itself was in effect a poor example and should be upgraded!<br><br>6) More project time is needed.<br><br>7) More flexibility. Not all children are interested in all areas of work. Program should be broadened to give wider variability.<br><br>8) On site activities should be increased. Too much time was spent in travelling to the study areas.<br><br>9) Recreation aspects of the program need improvement.<br><br>10) Disruption of school program was caused by having schools split their numbers to attend with other schools. Educational gains did not warrant the disruption.<br><br>11) Site not suitable. A good site should embody:<br>a) housing for smaller groups<br>b) an area rich in variety of experiences on site, requiring no transportation.<br>c) ready accessibility to sources of interest<br>d) a "feeling" of isolation<br>e) buildings for:<br>i) cooking and eating<br>ii) large group meetings |

TABLE VI (con't.)

| SUMMARY OF ADMINISTRATORS' REPORT | |
|---|---|
| STRONG POINTS OF THE PROGRAM | IMPROVEMENT NEEDED |
| | iii) Lab facilities, study areas, a place for quiet recreation<br>iv) sick bay<br>v) suitable accommodation for staff with a small recreation area for staff attached.<br>vi) Separate accommodation for supervisory teachers.<br><br>12) Administration of the school:<br>i) Responsibilities need definition<br>ii) Lacked positive direction<br>iii) Overlapping areas of responsibility could lead to friction.<br><br>13) Counsellor/aides<br>No homework should be assigned<br>Why only recreation students chosen?<br><br>14) Teachers<br>More participation in the camp program. Teachers should not be observers. Also see 1, 2 and 3 of this table.<br><br>15) Transportation<br>Movement of luggage difficult, hire a truck.<br>Transportation to study area difficult, a van based "on site" would be a useful addition to a future camp. Also see 4 and 8 of this table.<br><br>16) Sanitary upkeep of toilets should be the responsibility of a custodian. |

TABLE VII

SUMMARY OF STUDENT TEACHERS' REPORT

| STRONG POINTS OF THE PROGRAM | IMPROVEMENT NEEDED |
|---|---|
| Taught the student teachers:<br>a) a great deal about students; how they respond to me and how I respond to them.<br>b) many things about teachers.<br><br>The program was a success for all students:<br>a) taking the classroom outdoors is more beneficial to the student than taking a segment of the outdoors into a classroom.<br>b) those groups that came to our camp with preparation and lead up lessons on the theme, "The Web of Life" gained more academically from the program than those students who were not prepared beforehand.<br><br>c) The basic program was good.<br><br>d) Project work was good. | Site:<br>poor<br>recommend relocating<br>a) too close to road (dangerous)<br>b) poor on site rescurces<br>c) too much travelling time to resource areas.<br><br>Program:<br>Mondays were weak, improve by:<br>a) having discussion groups, 1 teacher, 6 students to evaluate what each student wanted to get from the camp, what is possible and to give direction.<br>b) show students the study areas available, to stimulate interest in particular areas and to give him some scope of what he ma y pursue for that week.<br><br>Homeroom Teachers:<br>In-service training needed to show teacher how the outdoors can be used.<br>They are the key and we should be resources to them. They should be the leaders, not observers. If they took this role, the task for all would be less demanding and more rewarding.<br>They should not come unless they want to.<br><br>Director:<br>Should be an educator<br>Should be free to scout and develop new ideas and to identify potentially new resource areas.<br>Should be competent to enter into any subject area and take over if necessary.<br><br>Counsellor/aides:<br>No homework |

# Chapter 6

## PRESENTATION OF GUIDELINES, AND CONCLUSIONS

### I. INTRODUCTION

The following guidelines are based on the experience gained in the operation of the West Vancouver Outdoor School program, and on the literature reviewed and discussed in Chapters two and five. They are "propositional" in nature, - they are not definitive, refined guideline statements based on further revised trial programs. They may form a useful framework for thinking about the various factors to be considered in the design, development, and implementation of an outdoor school program based on a residential camp facility. They are based on experience gained specifically with outdoor science education. They may have some general application to programs with other curriculum foci, but they are not suggested as "universal" guidelines for all outdoor education programs.

### II. PROPOSED GUIDELINES

#### A. Objectives, Curriculum and Methodology

1. Objectives.

   a. A residential outdoor school program should have a clearly developed statement of objectives.

These objectives should be developed where possible by representatives of all those participating in the program. The objectives should be clearly communicated to all those involved in advance of the operation of the program.

b. Those responsible for developing a statement of objectives should consider the total educational experience. Personal and interpersonal learning outcomes should be considered as well as the academic objectives of the program.

2. Curriculum

a. The curriculum of an outdoor school program should be developed with consideration of the academic elements, social elements, and recreational elements. The curriculum of the outdoor school should be integrally related to the overall program of the school year.

b. The academic element of the curriculum may be focussed about a common theme, providing a framework for the integration of several subject areas, or alternatively from consideration within a single discipline or subject. The development of a curriculum theme or focus for the academic element of the program is dependent upon the site available, the season, available resources, and the age/grade level of the students involved.

c. Experiences should be included in the program which systematically support the interpersonal and personal learning objectives. These program elements need not be considered as simply incidental elements of a residential outdoor school program. The attainment of interpersonal objectives, for example the development of a closer relationship between the teacher and the student, should be facilitated by specifically planned activities and procedures and should not be left as an incidental outcome of the experience. In this team projects, group problem solving tasks, physical challenge activities, and recreational and social activities may all play an important role.

3. Teaching Methodology

The teaching methods chosen at an outdoor school should be chosen for their appropriateness in terms of the environment. The learning outcome sought, the abilities of the staff, and the safety of the students. In some circumstances and settings, very non-directive teaching strategies may be employed, while under other conditions directive methods may be applied. The activity or inquiry methods may be particularly appropriate to field investigations because they bring the student into direct contact with the environment, and give him the opportunity to observe and to manipulate it.

B. The Site for a Residential Outdoor Education Program

1. The choice of a site for an outdoor education program is dependent upon the objectives of the program. All things being equal, the major considerations in the selection of a site are: natural beauty, quality and variety of biological communities, and a sense of isolation especially in programs where the study of nature in an undisturbed condition is essential to the attainment of the educational objectives.

2. The size of the site chosen should be sufficient to support the numbers of students in attendance and the activities which will occur on the site. It is convenient if the site itself provides sufficient natural resources to make extensive travel by vehicle unnecessary. A general guideline for site size, for a program which will operate largely on a particular site over a period of time is one or two acres per student in attendance.

3. The choice of a site must also depend upon the age of the students involved, with special reference to the safety of students engaged in outdoor activities of both an academic and recreational nature.

4. The site must provide physical facilities of a temporary or permanent nature to support the educational objectives of the program.

a. Student Accommodation.

Because the interpersonal or social objectives

of the experience are an important element of the overall program, student housing should further the attainment of interpersonal skill. Housing students in small groups of from seven to twelve students seems the most appropriate way to support this objective.

b. Laboratory/Student Work Area.

If the program is employing the methodology of Inquiry Teaching, and if student projects are a major part of that methodology, then space for student investigations is necessary. This space may combine the functions of resource center, laboratory, and workshop. But the student work area must be large enough to accommodate the activities of several students at once.

c. Dining Hall.

The dining hall can fulfill several functions in a residential outdoor school, in addition to allowing the entire community of students and staff to sit down to a common meal. It can also be a meeting area for the whole group, and a recreational/social area. Where a site with permanent buildings is being considered, the importance of this central building should not be overlooked.

d. Dispensary or First Aid Station.

If possible, a dispensary or first aid station

should be established or should be available. Its location, especially in cases of its function as a first aid station, should be known to all staff and students.

e. Staff Accommodation

Because of the rather constant and demanding nature of interactions between students and staff at an outdoor school, separate staff quarters, adjacent to student accommodations, are suggested. In some circumstances, for reasons of interpersonal objectives, safety, or supervision, it may be desirable to accommodate the staff with the students, in the same small group housing units.

f. Kitchen Facilities, Sanitary Facilities, and Water Supply.

Kitchen services should be capable of providing cooked food to a group of the size accommodated. Sanitary facilities and water supply should meet the health standards provided by the jurisdiction in which the site exists, or to ensure the adequate health of the students.

C. The Staff for a Residential Outdoor School Program

1. The staff of a residential outdoor school program operating at a "permanent" site can be devided into two broad categories: the staff provided by the

outdoor school itself, and the regular teachers who accompany the students to the outdoor school. Both types of personnel are important to the operation of an outdoor school program.

2. On-Site Staff.

a. The Camp Director.

The camp director should be an educator, with teaching experience, and with a thorough knowledge of outdoor education, especially in the context of residential facilities and programs. The director should have overall responsibility for the operation of the site, but should act as a partner with the regular classroom teacher to help the teachers attain their own objectives, as well as the objectives of the overall program.

b. Additional On-Site Staff.

The staff of an outdoor school should be selected to facilitate the attainment of the objectives of the program. They may include: a camp cook, a nurse or first aid attendant, a recreation worker or aide, and maintenance staff. The relative importance given to the appointment or employment of these persons will depend on the objectives of the program, and the nature of the site.

3. The Classroom Teacher.

The classroom teacher should have an understanding of the underlying philosophy of the camp program. The classroom teacher is the key to relating the "in-school" material and content to the outdoor experience. The outdoor residential experience should not be an isolated experience. Teachers should have in-service training on the site, to enable them to become aware of the possibilities for integrating a pre-camp, camp and follow-up program.

E. Equipment and Other Resources

1. Equipment provided at the site should be appropriate to the attainment of the objectives of the program, and should allow for student safety and comfort during prolonged periods in the field under prevailing weather conditions.
2. Equipment should be appropriate to use by students in their inquiry activities and project work.
3. Adequate library resources should be available on site to enable students to pursue the answers to questions likely to arise, given the nature of the site and the objectives of the program.

F. Food

1. Adequate nutrition is essential to student morale and general welfare during a residential program.

2. Where possible, students should participate in the planning of menus.
3. The nature of food consumed, and the manner in which it is eaten should support the educational objectives of the program.

G. Schedule

The schedule should allow the fullest possible attainment of all the objectives of the residential outdoor school experience: personal, interpersonal, and academic. Specifically, it should allow sufficient time for student project work and investigations, for recreation, and for social interaction.

H. Recreation

1. Adequate provision should be made for a varied and appropriate recreational program.
2. The recreation program should be appropriate to the overall objectives of the program, to the site, to the season of the year, and to the grade, age, interests, and backgrounds of the students.

I. Financial Considerations

1. In general, the Residential Outdoor School program should be funded on the basis that the school authority provides funding for the portions of the program which are a normal part of schooling, and any specialized

equipment and clothing. The parents of the students provide those things which are normally provided by the home: food, clothing, and housing. The latter items, other than clothing and personal equipment may be provided via a special fee or levy paid by the parents, or raised by the students themselves, or some combination of both.

2. A student should not be prohibited from attendance for purely financial reasons. The School Authority should make provision for cases of economic hardship on the part of individual students in planning a program.

J. Program Evaluation

1. The evaluation of the program should be considered from the standpoint of its operational details and enducational outcomes.

2. Provision for program evaluation should be designed into the development of the program from the outset. Such evaluation should be designed to provide maximum objectivity, and to separate political, logistical, or operational concerns from the attainment of educational objectives.

K. Communication

It appears to be essential to provide for an adequate flow of information between all those involved

in the development and operation of an outdoor school program. This includes communications between those charged with the development and operation of the outdoor school and the potential users - teachers, students, school administrators, and the parents. If the program is to secure support and intelligent use from its clientele, then it must make that clientele aware of its purposes, its activities, and its new or changing directions.

## III. SUMMARY

There are many "species" in the genus known as "outdoor education". The present study has concentrated its analysis on the operation of a Residential Outdoor Science program by West Vancouver School District. The guidelines presented above refer therefore to the type of outdoor education program which centers or bases its operation on a fixed site or "base camp" which is occupied by the program for a period of time, usually several months. It is different therefore from programs involving travel through a wilderness area, with the establishment of temporary campsites along the way, although such a program might still choose academic objectives in the field of science. The guidelines presented may be of some use to the planners of such a program, for instance in consideration of food planning, student selection, or parent orientation, but no suggestion is made that they

are universally applicable. Some of the guidelines appear vague. This is bacause it is difficult to state them in an unequivocal fashion, either on the basis of available literature, or the present experience. Some of the educational questions encompassed by outdoor education are complex and of profound importance. The need for encounter with "reality" in the course of education, the question of human attitudes towards self and towards nature, and the interaction between these, are examples. The guidelines presented here identify the need to consider the interaction of many elements in planning almost any educational program: personnel, environment, resources, etc. It is likely that they will have their greatest use as a starting point for developing a planning process for residential outdoor education programs.

# BIBLIOGRAPHY

# BIBLIOGRAPHY

AMIDON, Edmund J., and N.A. Flanders. The Role of the Teacher in the Classroom. Minneapolis: Association for Productive Teaching, 1967.

BENTON, A. H., and W. E. Werner. Junior Field Biology and Ecology. New York: McGraw-Hill, 1966.

BLACKWOOD, Paul E. "How to Evaluate Science Learning in the Elementary School," U.S. Office of Education, Washington: Chief Instructional Service Section, Division of State Agency Co-operation, 1968. (Mimeographed).

BLOOM, Benjamin S., and others. Taxonomy of Educational Objectives, Handbook I, Cognitive Domain. New York: David McKay, 1956.

BREHM, Shirley A. A Teacher's Handbook for Study Outside of the Classroom. Columbus, Charles E. Merrill Publishing Company, 1969.

BROWN, E. H. "The Academic Aspects of Outdoor Education," Extending Education, I:1, September, 1961

BRUNER, J. S. The Process of Education. Cambridge: Harvard University Press, 1960.

BRUNER, J. S. On Knowing. Cambridge: The Belknap Press of Harvard University Press, 1964.

CANADIAN EDUCATION ASSOCIATION. Outdoor Education: A Survey of Activity in Canada. Toronto: Canadian Education Association, 1969.

CARSON, Rachel. Silent Spring. Boston: Houghton Mifflin Company, 1962.

COBURN, D. "Trends in Outdoor Education," School Administration, 31 - 36: October, 1968.

CONANT, James B. Two Modes of Thought; My Encounter with Science and Education. New York: Trident Press, 1964.

COWELL, Eric B. "Field Centres for Outdoor Education". Address at Albion Hills Conservation School, August 4, 1964.

DANSEREAU, Pierre. "Man and His Environment," Bulletin Canadian Commission for UNESCO, 12: 1, May 1969.

DANSEREAU, Pierre. "The Hope of Human Ecology", Bulletin Canadian Commission for UNESCO, 12: 2, July, 1969.

DILKE, Margaret S. Field Studies for Teachers. Vol. 1-2 London: Rivingtons, 1969.

DONALDSON, George W., and Louise E. Donaldson "A Camp is a Children's Community" Camping Magazine 27: 13-14, April 1955

EBASHI, Shimshiro. "Outdoor Education and Camping in Japan;" Address at The New York State School of Conservation, 1968.

EHRLE, Elwood B. "If You Teach the Content, Who Will Teach the Students?" The Science Teacher, 38: 6, September, 1971

FLANDERS, N. A. "Personal - Social Anxiety as a Factor in Experimental Learning Situations," Journal of Education Research, 45: 1951.

GABRIELSEN, M. Alexander, and Charles Holtzer. The Role of Outdoor Education. New York: The Centre for Applied Research in Education, 1965.

GARDNER, J. W. "Self-Development," Science, 143: 2 February, 1964.

GARRISON, Cecil. Outdoor Education - Principles and Practice. Springfield: Charles C. Thomas, 1966.

GILLENWATER, Mack H. "Outdoor Education a Coat of Many Colours," Peabody Educational Journal, 86: 3, March, 1969.

GLASS, Bentley. Science and Ethic Values. Chapel Hill: University of North Carolina Press, 1965.

GOWAN, Demos, and Torrance Gowan. Creativity: Its Educational Implications. New York: John Wiley and Sons, 1967.

HALL, Dennis. Living and Learning. Toronto: Newton Publishing Co., 1968.

HAMMERMAN, Donald R. Outdoor Education: A Book of Readings. Minneapolis: Burgess Publishing Co., 1968.

HAMMERMAN, Donald R., and William M. Hammerman. Teaching in the Outdoors. Minneapolis: Burgess Publishing Co., 1964.

HAWKINS, Mary E. Vital News of the Environment. Washington: National Science Teachers Association, 1970.

HAWKINS, R. C., and C. Benney. "Outdoor Laboratory Program for the Elementary School," National Elementary Principal, 47: February, 1968.

HUG, J. W. Curriculum Enrichment Outdoors. Evenston: Harper and Row, 1965.

HUMMER, Paul J. "The Outdoor Classroom," The American Biology Teacher, 30: 3, March, 1968.

HUNGERFORD, Harold R., and Clifford E. Knapp. "Conservation Education: Problems and Strategies," The Science Teacher, 36: 5, May, 1969.

HURD, Paul De Hart, How to Teach Science Through Field Studies. Washington: National Science Teachers Association, 1965.

JESSER, David L. "Systematic Planning: An Answer to Educational Dilemmas?" The Science Teacher, 36: 5, May, 1969.

KAGAN, Jerome. Creativity and Learning. Boston: Houghton Mifflin Company, 1967.

KIRK, John J. "Outdoor Education: Its Origin and Purpose." Address at a Conference on Outdoor Education, Lake Couchiching, Toronto: 1966.

KIRK, John J. "Trends in Outdoor Education." Address at The International Congress for Health, Physical Education, and Recreation, Dublin (Ireland): 1968.

KIRK, John J. "Educational Change, What about the Outdoors?" Address at a Conference on Outdoor Education and Recreation for Administrators and Superintendents, Vancouver (Canada): 1970.

KLIMAS, John. "Education and Our Ecological Crisis." Science and Children, 7: 6, March, 1970.

KNAPP, H. G. "Outdoor Science Laboratories," Montana Education, 44:19 - 20, November, 1967.

KRATHWAHL, David R., Benjamin S. Bloom, and Bertram B. Masia, Taxonomy of Educational Objectives, Handbook II, Affective Domain.

La SHIER, Jr., W.S. "The use of Interaction Analysis in B.S.C.S. Laboratory Block Classrooms." Paper read at the National Science Teachers Association meetings, April 1966, New York.

LOVETT, Thomas B. "Outdoor Education at Camp," Science and Children, 6: 8, May, 1969.

MacDONALD, Neil S. Open-Air Schools. Toronto: McClelland, Goodchild and Stewart, 1918.

MAND, Charles L. Outdoor Education. New York: J. Lowell Pratt and Company, 1967.

MARKSBERRY, Mary Lee. Foundations of Creativity. New York: Harper and Row, 1963.

MARX, Leo. "Pastoral Ideals and City Troubles'" in I. Barbour (ed.) Western Man and Environmental Ethics. Don Mills: Addison - Wesley 1973.

MASSIALAS, Byron G. Creative Encounters in the Classroom. New York: John Wiley and Sons, 1967.

MATTHEWS, W. H. "America's Open-Air Classrooms," Science and Children, 7: 6, March, 1970.

McCLAREN, Milton M. "Environmental Education: Issues and Challenges," Proceedings of a National Environmental Education Conference, Regina: October, 1975.

MICHAEL, William B. Teaching for Creative Endeavour. Bloomington, Indiana University Press, 1968.

MILLERY, P.L. "Innovation and Change in Education," Journal of the Association for Supervision and Curriculum Development, 27: 4, January, 1970.

MULLER, Warden B. "Make and Take, but don't Forsake, the Field Trip," International Association for Vocational Education, 36: 3, September, 1969

NEDELSKY, Sylvia S. in N.L. Gage (ed.), Handbook of Research on Teaching. Chicago: Rand McNally and Company, 1963.

NICHOLSON, E. M. Science Out of Doors. New York: Longmans, Green and Company, 1963.

NORTHWAY, Mary L. Camp Counsellor. Minneapolis: Burgess Publishing Company, 1966.

NYQUIST, Ewald B. "Open Education - Its Philosophy, Historical Perspectives and Implications," The Science Teacher, 38: 6, September, 1974.

OLSON, Martin N. "Identifying Quality in School Classrooms: Some Problems and Some Answers," M.S.S.C. Exchange, XXIX: 5, January, 1971

PILTZ, A. and Robert Sund. Creative Teaching of Science in the Elementary School. Boston: Allyrand Bacon, 1968.

PROVINCE OF BRITISH COLUMBIA, Department of Education, Elementary Science, Victoria: Queen's Printers, 1969.

RUTHERFORD, James F. "The Role of Inquiry in Science Teaching," Journal of Research in Science Teaching, 32:4, June, 1964.

SHARP, L. B. "Basic Considerations in Outdoor and Camping Education," The Bulletin of the National Association of Secondary Principals, 31:43-47, May, 1947.

SHULMAN, Lee S. and Evan R. Keislar. Learning by Discovery: A Critical Approach. Chicago: Rand McNally and Company, 1966.

SMITH, Julian W. "Outdoor Education for Lifetime Interests," Childhood Education, 44: 4, October, 1967.

SMITH, Julian W., and others. Outdoor Education. Englewood Cliffs, Prentice Hall, 1963.

STAPP, William B. Integrating Outdoor Education into the Curriculum. Minneapolis: Burgess Publishing Company, 1965.

STAPP, William B. Environmental Education. Ann Arbour: University of Michigan Press, 1969.

SUCHMAN, J. R. Developing Inquiry, Chicago: Science Research Associates Inc., 1966.

SUND, Robert, and Leslie W. Towbridge. Teaching Science by Inquiry . Columbus: Charles E. Merrill Publishing Company, 1967.

SZENT-GYORGYI, Albert. "Interdisciplinary Education," The Science Teacher, 37: 8, November, 1970.

TOFFLER, Alvin. Future Shock. New York: Random House Inc., 1970.

TORRANCE, Paul. "Scientific Views of Creativity and Factors Affecting its Growth," in Jerome Kagan, Creativity and Learning. Boston: Houghton-Mifflin Company, 1967.

TURNER, Meile. "Environmental Education: Essential Direction for Schools in the 70's," School Progress, 40: 5, May, 1971.

VIVIAN, Eugene V. and E.L. Henderson. "Environmental Education," Instructor, LXXX: s, January, 1971.

WATSON, Fletcher G. "Research on Teaching Science", in N.L. Gage (ed.), Handbook of Research on Teaching. Chicago: Rand McNally and Company, 1963.

WHITNEY, Allan, and Milton M. McClaren. "Making the Most of Outdoor Schools," The B.C. Teacher, 54: 5, May - June, 1975.

# APPENDICES

# APPENDIX A: MEDICAL HEALTH FORM

WEST VANCOUVER SCHOOL BOARD

OUTDOOR SCIENCE SCHOOL
HEALTH INFORMATION SHEET

(This information will be of great value in providing the best possible health and safety conditions for your child.)

NAME OF CHILD _____ AGE _____
First Name Last Name

Boy ☐ Girl ☐

STREET _____

NAME OF PARENT OR GUARDIAN _____ PHONE _____
First Name Last Name

BUSINESS ADDRESS _____ PHONE _____

FAMILY DOCTOR _____ PHONE _____

General information necessary for your child's protection and care.

1. Any allergy? What? _____
(please specify food, drug, animal, etc.)

2. Do you know of any health factor that makes it advisable for your child to follow a programme of limited physical activity?

_____
(if the answer is YES please give all details on the back of the sheet)

3. In order to protect your child from possible embarrassment the following information is needed.

   (a) Does he (or she) walk in his sleep _____

   (b) Do you know of any weaknesses or other factors which may affect the care of your child. Please be specific. It is strictly confidential.
   _____

4. Date of last Tetanus Shot _____

5. State any nervous habits _____

6. Particular fears, if any _____

Note: Parents may call the nurse of the home school for further information and advice. Telephone _____.

LPS/md

---

TO: MR. E. JACKSON, CO-ORDINATOR OF THE OUTDOOR SCIENCE SCHOOL:

Please allow my child to take part in the Outdoor Science School programme at the time scheduled for his/her school.

_____
Signature of Parent or Guardian

# RESOURCE MATERIALS

## APPENDIX B

Appendix $B_1$: Library List

Appendix $B_2$: Science Equipment

Appendix $B_3$: Chemicals and Materials

Appendix $B_1$: Library List

(FORM S1-69)

BOARD OF SCHOOL TRUSTEES
OF SCHOOL DISTRICT #45 (WEST VANCOUVER)

SUPPLEMENTARY REQUISITIONS
FOR TEACHING SUPPLIES

FOR OFFICE USE ONLY

| |
|---|
| APPROVED: |
| DATE: |
| CODE: |

B - 4407 (OSS)

SCHOOL OUTDOOR SCIENCE DEPT

DATE SUBMITTED September 5, 1969

(Submit in Duplicate - Double Space Between Items)

CATEGORY:
1. General
2. Science
3. H.E.
4. Vocational (I.E.)
5. Library
6. Tests
7. Athletics
8. Music
9. Art
10. Academic Tech.
11. Spec. Educ./Occup.
12. Drama

SHOW APPLIC. CAT. NO/S

| NO. | DESCRIPTION | UNIT OF SUPPLY | NO. REQU'D | UNIT COST | TOTAL | P.O.# |
|---|---|---|---|---|---|---|
| | SCIENCE BOOKS AND PAMPHLETS FOR OUTDOOR SCIENCE SCHOOL AS PER ATTACHED LIST | | | | | |

PRINCIPALS SIGNATURE

BOOKS FOR OUTDOOR SCIENCE SCHOOL: September 5, 1969

TO BE ORDERED DIRECT:

Anderson, R.M. "Methods of Collecting and Preparing Vertebrate Animals
National Museum of Canada

Charles, Flora "Sound and the Sea"
Source?

Clemens, Roger "Curriculum Outline for High School Forestry, Logging and Lumbering Instruction.
Santa Rosa: Redwood Region Conservation Council
223 Rosenberg Building

DeWaard, E. John "What Insect is That?"
American Education Publications,
Education Center, Columbus, Ohio

Guberlet, Muriel Lewin "Seaweeds at Ebb Tide"
Seattle: University of Washington Press. 1956

Hines, Bob "Ducks at a Distance: A Western Fowl Identification Guide"
United States Dep't. of the Interior, Fish & Wildlife Service, July 1963 10 copies

Handbook Series of the B.C. Provincial Museum
Department of Recreation and Conservation, Victoria, B.C. No. 1 - 27 (complete series)

Hudson, Irene B. "Medicinal and Food Plants of British Columbia"
Victoria, B.C.: Quality Press 1950

Leavitt "Terrariums & Aquariums, Fun-Time
Children's Press, Chicago

Kjellstrom, Bjorn "Be Expert with Map and Compass"
Stackpole, New York, N.Y.

Materials for Map & Compass"
Canadian Orieteering Assoc.,
77 York St., Toronto, Ont.

McDiarmid, Don "The Fresh-Water Fishes of B.C."
Queens Printer, Victoria, B.C.

Nelson and Lorbeer "Science Activities for Elem. Children"
Wm. C. Brown, 135 S. Locust St., Dubuque, Iowa 52105

U.S. Forest Service, "Map and Compass"
U.S. Forest Service, R-6, Portland, Oregon, 1965 (Illus. No. 1)

Queen's Printer, "Native Trees of Canada"
Dep't. of Resources & Development - Forestry Branch

Toronto Board of Educ., "Science Field Trips Teacher's Guide"
Toronto Elem. School Science Assoc.
Toronto Board of Education

BOOKS FOR OUTDOOR SCIENCE SCHOOL - Cont'd.:

TO BE ORDERED FROM H. SMITH:

Ames, Gerald and Wyler, Rose, "Biology, An Introduction to the Science of Life"
New York: Golden Press, 1961

Beeler & Branley, "Experiments with a Microscope"
Thomas Y. Crowell Company, New York

Brandwein, Beck, Strahler, - Hollingworth and Brennan, "The World of Living Things"
New York: Harcourt, Brace & World, Inc. 1964 (pp 213-240)

Buchsbaum, R. and Buchsbaum, M., "Basic Ecology"
Pittsburgh: The Boxwood Press, Box 7171, Pitts. 15213 (ppl-20)

Buck, Margaret Waring, "Small Pets from Woods and Fields"
New York: Abingdon Press

Buck, M.W., "In Ponds and Streams"
Abingdon Press, New York

Craig, Gerald S., "Science for the Elementary Teacher"
Boston: Blaisdell

Farb, Peter (and the Editors of LIFE), "Ecology" (from LIFE Nature Library)
New York: Time, Inc., 1963

Farb, Peter and the Editors of LIFE, "The Insects" - LIFE Nature Series
New York: Time, Inc. 1962 - Gage

Farb, Peter, "The Forest"
Time Incorporated, New York

Hausmann, L.A., "Beginners's Guide to Fresh-Water Life"
G.P. Putnam Sons, New York

Haworth, F.M., "Aquana"
University of London Press

Hillcourt, William, "Field Book of Nature Activities and Conservation"
New York; G.P. Putnams's & Sons 1961 (pg. 112-113)

Hutchins, Ross E., "Caddis Insects"
Dodd Mead & Company, New York

Jaques, H.E., "Living Things and How to Know Them" HOW TO KNOW SERIES - approx. 14 books
Dubuque, Iowa: Wm. C. Brown, Co., 1946, 135 S. Locust St., Dubuque 52001

Jensen, "How & Why Wonder Book of Mushroom Ferns and Mosses"
Grosset & Dunlap Pub., New York

Kingsbury, John M., "Poisonous Plants of the United States and Canada"
Englewood Cliffs, New Jersey: Prentice-Hall, 1964

Lutz, Frank E., "Field Book of Insects"
G.P. Putnams Sons, New York

Lyons, C.P., "Trees, Shrubs and Flowers to Know in B.C."
Toronto: J.M. Dent & Sons ~~1968~~ 1956

BOOKS FOR OUTDOOR SCIENCE SCHOOL - Cont'd.: 

TO BE ORDERED FROM H. SMITH:

McCormick, J., "Living Forest" -
Harper & Brothers, New York

Montgomery's Books on Plants (cannot locate)

Morgan, "Field Book of Ponds & Streams"
Putnam

Morholt, Brandwein & Joseph, "A Sourcebook for the Biological Science"
Harcourt Brace & World, Inc.

Pels, G., "The Care of Water Pets"
T. Crowell Co., New York

Peterson, Roger Tory, "How to Know the Birds"
Boston: Houghton Mifflin Co., 1949

Peterson, Roger Tory, "A Field Guide to the Birds"
Boston: Houghton Mifflin Co. 1964

Peterson, Roger/Tory Tory, "A Field Guide to Western Birds"
Boston, Houghton, Mifflin Co. 1964

Pettit, Ted S., "A Guide to Nature Projects"
Norton & Company, New York

Putnam Nature Series & Beginners Guide (?)

Ricketts & Calvin, "Between Pacific Tides"
Stanford University Press

Riley, "Insects"
Blandford Press

Robbin's, C. - "Birds of North America"
Golden

Stackpole Books, -"Pocket Guide to Animal Tracks",
Stackpole, Hanesburg, 17105, Pa. (Cameron & Kelker Streets)

Storer, J.H., "The Web of Life"
New York: The Devin Adair Co., 1963

Witherspoon, "The Living Laboratory"
Doubleday & Company

Zim, H., "Weather"
Golden Press - New York

Zim & Martin, "Trees"
Golden Press - New York

Zim (head author paperback), "Golden Book Nature Series"
Golden Press - New York

??? 1001 Questions About Birds, etc. (Series Includes Weather, Birds, Trees, etc. paperback)
Dodd Mead & Company

Appendix $B_2$: Science Equipment

TELEX: WELCHAN VCR 04-5933

TELEPHONE (604) 736-9291

# SARGENT - WELCH SCIENTIFIC OF CANADA, LIMITED

P.O. BOX 3979 VANCOUVER 9. B.C.

EDUCATIONAL APPARATUS – RESEARCH SPECIALTIES

## QUOTATION

Box 68, Station B
Calgary, Alberta
Phone: 282-6360

To: School District No. 45,
Mr. E. Stann, Purchasing,
West Vancouver, B. C.

Date September 8, 1969.
Our Quote No. 9-15
f.o.b.
Delivery
Terms
Per G. H. Byrne

Your Field Science Material

Prices include boxes and containers except as noted and are based ex-warehouse unless other f.o.b. point stated above. This quotation is offered for prompt acceptance; goods subject to prior sale and availability from sources of supply. Prices normally quoted including duty only, sales taxes extra. Where prices are quoted for duty free customers, exemption certification must accompany order subject to Customs Department acceptance. We cannot be responsible for delays occasioned by priority control of materials, strikes, floods, inability of carriers or other causes beyond our control. In event of discrepancy between unit and total price, unit price prevails.

*We thank you for your kind enquiry and are pleased to quote as follows:*

Microscopes (dissecting) - Swift M81B @ 110.00 Less 10%

Microscopes (compound) - Swift M244 @ 42.50 Less 15%

Clipboards - Local

Atmometer - Local

Balances Triple Beam - #610 gm S3455 @ 27.50

Binoculars 7 X 35 - Local

Blendor - S61640 @ 37.50

Bottom Sampler - Local

Buckets - Local

Cameras - 35mm - Local

Books - Local

Compasses - 1882 - @ 1.68

Cutting Shears - Local

Chain Saw - Local

Dissecting Kits - S27096 @ 14.00
S27090 @ 4.75

Millipore Kits @ 65.00

Dissecting Pans, Wax-lined - #8251 @ 1.95

(Cont. Page 2)

2/

Hot Plates - #5287 @ 29.25

Hygrometer - #1280 @ 12.50

Chemicals - To be advised

Compasses - #1882 @ 1.68

Rulers transparent plastic - S44675 @ .15

Rake - Local

Ice cooler styrofoam - Local

Test tubes @ .15

Medicine Droppers - #5431 @ .50/pk

Pliers - Local

Pans, large flat - 19x13x$2\frac{3}{4}$ - S82335 @ 3.00

Hydrometers - S41895-M @ 3.50

Contingencies - Local

Microscope Slides Blank- S58787 @ 3.00 gross

Microscope Slides Concave - S58815 @ 2.20 doz.

Coverslips #2 - S58725-A @ 2.50 oz.

Plastic tubing - #5513-07 (1/8") @ 9.18/50 ft.

Apary - Local

Portable bunsen burner - #4778 @ 11.40

Coleman Stove - Local

Field First Aid Kits - Local

Inoculating loops - #8246C @ .50

Levels, carpenters' - Local

Transit, pocket - #9745 @ 59.98

Meter sticks - S44685 @ 1.35

Hypodermic Needles & Syringes - S79401-20-B @ 8.40/pk.100

Nets Aquatic - Local

Nets Dip - Local

(Cont. Page 3)

3/

Nets - Insect - #8338A @ 5.00 ea.

Nets Plankton Medium Mesh - #8338P @ 43.12 ea.

Paper ph sets - S65260 @ 2.00 ea.

Plant Grappling Bar - #8338-G @ 8.40 ea.

Seines - #8338S @ 22.34 ea.

Soil Reaction ph Tester - ~~#9715 @ 29.95~~ 97304 @ 34.95 ea.

Thermometers - S80005-B @ 1.75 ea.

Thermometers - Max-Min - #1274 @ 14.50 ea.

Traps live mouse - Local

Traps live rabbit - Local

Screen Sieve Set @ 12.50

Psychrometer - #6839R @ 1.30 ea.

Rain Gauge - #1301 - @ 22.34 ea.

Barometer - #1236 @ 18.48 ea.

Anemometers - #1307 @ 7.00 ea.

Air Pump - #8347 P @ 29.99 ea.

Aquaria, 10 gal. @ 15.00

Field Magnifier 4X - #8047 @ .90 ea.

Telescope Spotting - Local

Increment Borer - Local

Shovels - Local

Garden Trowels - Local

Spatulas - Local

Hammer Geologic - Local

Measuring Tapes - Local

(Cont. Page 4)

4/

## POLYPROPYLENE WARE - UNBREAKABLE

| | | | |
|---|---|---|---|
| Beakers: | 50 ml - S4688-E | 24 @ .33 ea. | 7.92 |
| | 150 ml - S4688-G | 24 @ .55 ea. | 13.20 |
| | 250 ml - S4688-H | 24 @ .70 ea. | 16.80 |
| | 400 ml - S4688-J | 12 @ .85 ea. | 10.20 |
| | 600 ml - S4688-L | 12 @ 1.50 ea. | 18.00 |
| | 1000 ml - S4688-M | 8 @ 1.95 ea. | 15.60 |
| Erlenmeyer Flasks: | | | |
| | 125 ml - N4102 | 24 @ 9.00/12 | 18.00 |
| | 250 ml - N4102 | 24 @ 6.90/6 | 27.60 |
| | 500 ml - N4102 | 12 @ 6.60/4 | 19.80 |
| Graduated Cylinders: | | | |
| | 100 ml - N3662 | 8 @ 2.50 ea. | 20.00 |
| | 250 ml - N3662 | 8 @ 3.10 ea. | 24.80 |
| Buret: | | | |
| | 100 ml - N3660<br>25 ml - N3660 | 4 @ $\overline{11.00}$ ea. | $\overline{44.00}$ |
| Funnels: | | | |
| | I.D. of Top 150mm - N4252 | 12@ 2.90/4 | 8.70 |
| Glass Tubing: | | | |
| | Assorted sizes | | 25.00 |

## Appendix $B_3$: Chemicals and Materials

(FORM S1-69)

BOARD OF SCHOOL TRUSTEES
OF SCHOOL DISTRICT #45 (WEST VANCOUVER)

SUPPLEMENTARY REQUISITIONS
FOR TEACHING SUPPLIES

FOR OFFICE USE ONLY

APPROVED:
DATE:
CODE: B - 4407 (OSS)

SCHOOL Outdoor Science School DEP'T

DATE SUBMITTED September 8, 1969

(Submit in Duplicate - Double-Space Between Items)

SCHOOL DISTRICT No. 45 (WEST VANCOUVER)
Sec. Treas.
Dist. Sup.
SEP - 9 1969
Main Sup.
DESCRIPTION
Payroll
File

DISTRICT SUPERINTENDENT RECEIVED 9.9.69

CATEGORY:
1. General
2. Science
3. H.E.
4. Vocational (I.E.)
5. Library
6. Tests
7. Athletics
8. Music
9. Art
10. Academic Tech.
11. Spec. Educ./Occup.
12. Drama

SHOW APPLIC. CAT. NO/S

Page 1 of 2

| NO. | | UNIT OF SUPPLY | NO. REQU'D | UNIT COST | TOTAL | P.O.# |
|---|---|---|---|---|---|---|
| 1. | Chemicals - | | | | | |
| | Ethyl Acetate | pints | 1 | | | |
| | Ikl | pints | 2 | | | |
| | Formaldehyde | gals. | 3 | | | |
| | Benedicts Solution | pints | 2 | | | |
| | Alcohol Ethyl — Denatured | gals. | 2 | | | |
| | Manganous Sulphate | gram | 1 M | | | |
| | Sodium Hydroxide | gram | 1 M | | | |
| | KI | gram | 1 M | | | |
| | Conc. $H_2SO_4$ | small btl | 1 | | | |
| | Sodium Thiosulphate | " " | 1 | | | |
| | Sodium Carbonate | " " | 1 | | | |
| | Soluble Starch | " " | 1 | | | |
| | Conc. HCl | " " | 1 | | | |
| | Glacial Acetic Acid | " " | 1 | | | |
| | Potassium Bi-iodate $KH(IO_3)_2$ | " " | 1/4 | | | |
| | Carbon Bisulphide | " " | 1 | | 50.00 | |
| 2. | Miscellaneous Supplies - | | | | | |
| | Roll acetate 5 mil - 10-1/2" x 50' | Roll | 1 | | 6.95 | 19627 |
| | Measuring tape 100 ft. (on loan) | | | | | |
| | Clipboards - legal size (Willsons Stat.) | each | 75 | | 60.00 | 19624 |
| | Buckets (medial divide) | each | 10 | | 10.00 | |
| | cont'd. | | | | | |

PRINCIPAL'S SIGNATURE

(FORM S1-69)

FOR OFFICE USE ONLY

| | |
|---|---|
| APPROVED: | |
| DATE: | |
| CODE: B-4407 (OSS) | |

BOARD OF SCHOOL TRUSTEES
OF SCHOOL DISTRICT #45 (WEST VANCOUVER)

SUPPLEMENTARY REQUISITIONS
FOR TEACHING SUPPLIES

SCHOOL Outdoor Science School DEP'T

DATE SUBMITTED Sept. 8/69

(Submit in Duplicate - Double Space Between Items)

CATEGORY:
1. General
2. Science
3. H.E.
4. Vocational (I.E.)
5. Library
6. Tests
7. Athletics
8. Music
9. Art
10. Academic Tech.
11. Spec. Educ./Occup.
12. Drama

SHOW APPLIC. CAT. NO/S



| NO. | DESCRIPTION | UNIT OF SUPPLY | NO. REQU'D | UNIT COST | TOTAL | P.O.# |
|---|---|---|---|---|---|---|
| 2. | Miscellaneous Supplies - Cont'd.: | | | | | |
| Eaton (8) | Compasses (rotating or protractor) | each | 24 | 3.50 | 84.00 | |
| | Cutting Shears | each | 1 | | 2.50 | |
| Eaton | Carpenter's level (very small bubble indicators) | each | 1 | | 3.50 | |
| | Shovel | each | 1 | | 2.50 | |
| 3. | Dissecting Equipment - (petty cash purchases by Dr. Perry) | | | | | |
| | Scissors (5) ) | | | | | |
| | Disposables ) | | | | | |
| | Scapels ) | each | | | 25.00 | |
| | Wooden tongue depressors ) | | | | | |
| | Applicator sticks ) | | | | | |
| | | | | | 244.45 | |

PRINCIPAL'S SIGNATURE

Appendix C: Financial Statement for
Langdale Field Study

January 19, 1970.

OUTDOOR SCHOOL

Income & Expense Account
For the 11 Week Period Sept. 15 - Nov. 28, 1969

| | | | | |
|---|---|---|---|---|
| **INCOME:** | | | | |
| Fees - Attendance (659) | | | | |
| Paid in Full | 654.5 | | | |
| Waived | 4.5 | | | |
| | 659. | | | $ 16,362.50 |
| **EXPENSE:** | | | | |
| Salaries: | | | | |
| Teaching | | $ 4,732.16 | | |
| Other | | 2,506.40 | $ 7,238.56 | |
| Staff Benefits | | | 165.32 | |
| Rent, Light & Heat | | | 5,251.08 | |
| Insurance | | | 102.80 | |
| Telephone | | | 78.16 | |
| Maintenance & Custodial | | | 295.64 | |
| Travelling Expenses: | | | | |
| Dr. Perry | | 547.14 | | |
| Other | | 228.06 | 775.20 | |
| Rain Clothing | | | 2,110.13 | |
| Food | | | 5,101.23 | |
| Transportation | | | 2,537.58 | |
| Supplies & Apparatus | | | 2,584.59 | |
| Office Expense | | | 539.39 | |
| Miscellaneous | | | 3,132.06 | |
| | | | | $ 29,911.74 |
| Net Operating Loss | | | | 13,549.24 |
| Add: Initial Expenses | | | | 1,699.40 |
| TOTAL NET COST | | | | $ 15,248.64 |

# MEDICAL HISTORY SUMMARY

Appendix D

MEDICAL HISTORY SUMMARY

| | |
|---|---|
| PERCENTAGE OF STUDENTS WITH ALLERGY PROBLEMS 14.50<br><br>- Allergic to food 3.75<br>- Allergic to plants animals and dust 7.00<br>- Allergic to drugs 3.75 | SPECIFIC KIND OF ALLERGIES NOTED WERE: (e.g. food allergies)<br><br>Beans, peanuts, milk and dairy products, corn, raisins, eggs, peas, pork, oranges, tomatoes |
| PERCENTAGE OF STUDENTS that had medication sent with them to be administered by a nurse 3.75 | Many directions were supplied for time and dosage of drugs to be given. Almost all these indicated they would appreciate the nurse performing the administration so that there would be no "slip ups". |
| NUMBER OF STUDENTS that had weaknesses that the camp staff was cautioned about by parents on the Medical form 10.00 | SPECIFIC EXAMPLES OF these weaknesses include:<br>1) violent reaction to bee stings, food, asthmatic attacks. Need hospitalization or medication immediately<br>2) Epileptic<br>3) Suffers from bronchitis<br>4) Susceptible to pneumonia<br>5) Bed wetter<br>6) Physical defect<br>7) Congenital heart problem<br>8) Blind, deaf and degree |

# STUDENT QUESTIONNAIRE AND TEACHER INSTRUCTIONS

## APPENDIX E

Appendix $E_1$: Teacher's Directions

Appendix $E_2$: Student Questionnaire

Appendix $E_3$: Student Questionnaire Summary

Appendix $E_1$: Teacher's Directions

Dear Teacher

Enclosed you will find student questionnaires, asking questions about the grade seven Outdoor Science School held at Langdale during the months of September, October and November. I would appreciate it if you would distribute the questionnaire to all students who attended the camp from your school, on Monday or Tuesday of next week. Return the questionnaires to the School Board Office on the Friday Pony.

INSTRUCTIONS

TIME - No time limit needs to be set although all students should answer the questionnaire at the same time at one sitting. Probably one period is sufficient.

TO THE STUDENT - Inform the student that the questionnaire will be used to assess and improve the Outdoor School. The only way this can be done is if they answer the questionnaire truthfully with regards to their own feelings.

Let me take this opportunity to thank you for your participation in this project. Your help in organizing the students and your participation in the Outdoor School program has been greatly appreciated.

Yours truly,

Appendix $E_2$: Student Questionnaire

OUTDOOR SCIENCE SCHOOL

STUDENT EVALUATION OF PILOT PROGRAMME

CONDUCTED IN SCHOOL DISTRICT #45 (WEST VANCOUVER)

1. i. Name of your school _____

ii. Was there another school present with your school? Yes _____ No _____

2. Boy _____ Girl ____ (mark X)

3. Have you ever been to a camp before? Yes ____ No ____

4. If the answer to #3 is Yes, answer the following questions. Otherwise go on to question #5

i. What kind of camp experience was it?

____ Girl Guide Camp

____ Boy Scout Camp

____ Church Camp

____ Y.M.C.A. Camp

____ Other Explain _____

ii. Was the Outdoor School

____ Similar to your other camping experience?

____ Quite different from your other experience?

iii. Did you enjoy the Outdoor School

____ More than your other experience?

____ Less than your other experience?

____ About the same as your other experience?

5. i. Have you been on a farm before? Yes ____ No ____

ii. Have you been on a beach crawl before? Yes ____ No ____

iii. Have you been in the forest before? Yes ____ No ____

6. Did you find the whole experience:

____ Very good

____ Good

____ Average

____ Fair

____ Poor

7. Considering only the subject areas, rate:

| | V.G. | G | Av. | F. | P. |
|---|---|---|---|---|---|
| Marine | _____ | _____ | _____ | _____ | _____ |
| Forests | _____ | _____ | _____ | _____ | _____ |
| Sheep | _____ | _____ | _____ | _____ | _____ |
| Bees | _____ | _____ | _____ | _____ | _____ |
| Poultry | _____ | _____ | _____ | _____ | _____ |
| Pulp Mill | _____ | _____ | _____ | _____ | _____ |

8. Considering only the social aspects, rate:

| | V.G. | G. | Av. | F. | P. |
|---|---|---|---|---|---|
| Accommodation | _____ | _____ | _____ | _____ | _____ |
| Meals | _____ | _____ | _____ | _____ | _____ |
| Activities | _____ | _____ | _____ | _____ | _____ |
| Fire sides | _____ | _____ | _____ | _____ | _____ |

9. Mark the subject areas in which you feel the Outdoor School made some contribution to your education. Mark more than one if you think it applies.

_____ Social Studies
_____ Language Arts
_____ Mathematics
_____ Science
_____ P.E.
_____ Music
_____ Art
_____ Health and Guidance
_____ None.

10. Which of the following activities do you feel were of Educational Significance in the Outdoor School Programme? Mark more than one if it applies.

_____ Free time
_____ Field Hikes
_____ Writing reports and individual projects
_____ Eating and sleeping in groups
_____ Evening campfires
_____ Recreational events, e.g. games, competitions, etc.

11. How do you think <u>you</u> learn best?

_____ By studying books and answering questions.
_____ By listening to lectures and watching films.
_____ By seeing and feeling things as they exist naturally.

12. What is the best way a teacher can help <u>you</u> learn?

_____ By telling me what to do, and helping me continuously.
_____ By suggesting things to do, and helping me when I ask for assistance.
_____ By leaving me alone to work entirely on my own.

13. Do you think the Outdoor School provided for you with respect to your answers to #11 and #12? Yes _____ No _____

14. Were you able to get assistance from the instructors when you wanted it?
Yes _____ No _____

15. If you had an opportunity to attend an Outdoor School at another time what would you consider would be a good age? Give a reason

_____ Grade 8 Reason _____
_____ Grade 9 _____
_____ Grade 10

16. How would you rate the grade twelve counsellors?

_____ Very Good  Comments:_____
_____ Good
_____ Average
_____ Fair
_____ Poor

17. How would you rate?

i. Duties

_____ Very Good  Comments:_____
_____ Good
_____ Average
_____ Fair
_____ Poor

ii. Rules

_____ Very Good  Comments:_____
_____ Good
_____ Average
_____ Fair
_____ Poor

iii. The Idea of being at camp with another school

_____ Very Good  Comments:_____
_____ Good
_____ O.K.
_____ Don't like it

18. i. What did you enjoy the most?

_____ Hikes
_____ Sheep
_____ Poultry
_____ Marine
_____ Free time
_____ Pulp mill
_____ Meals
_____ Campfires
_____ Bees
_____ Forest
_____ Apparatus & Equipment
_____ Other _____

_____

ii. What did you least like about the Outdoor School?

_____ Getting to sleep
_____ Forest
_____ Bunks
_____ Too early to bed
_____ Duties

_____ Not enough time for projects
_____ Farm
_____ Free time
_____ Too early to rise - 7:00 a.m.
_____ Camp fires
_____ Pulp Mills
_____ Marine
_____ Recreation
_____ Other _____

_____

iii. What would you do to improve the school? Check more than one if it applies.

_____ None required
_____ More time for projects
_____ More to do on Monday and Friday
_____ Improve the forest
_____ Make it more like school -- Too much like a summer resort
_____ Add Swimming
_____ Improve the Marine
_____ Add Boating
_____ Janitor to help with clean up
_____ Improve the Farm
_____ Add a pond for pond study

Comments: _____

_____

_____

19. Which statement would you use to evaluate the Outdoor School?

_____ A lot of fun, but little or no educational value
_____ A good educational experience but not much fun
_____ Neither fun nor a good educational experience
_____ A good way to learn school subjects and have a lot of fun at the same time
_____ A lot of fun and a good way to learn about ordinary living.

20. Would you go again? Yes _____ No _____

EYJ/md

Appendix $E_3$: Student Questionnaire Summary

STUDENT QUESTIONNAIRE SUMMARY

1) Name of school (This information was used to identify which school, if any, was at the camp at the same time as another)

2) Boys: 341 Girls: 360 Total: 701 11 absentees or questionnaires not completed

3) Have you ever been to camp before? Yes - boys: 76.5% Girls: 66.6% Total: 71.5%

4) i) Was the outdoor school:
- similar to your other camping experience?
- quite different from your other experience?

ii) Did you enjoy the outdoor school:
- more than your other experience?
- less than your other experience?
- about the same as your other experience?

4)i) COMPARISON TO OTHER CAMPS

| RATING | FREQUENCY (#) | | | PERCENTAGE | | |
|---|---|---|---|---|---|---|
| | BOY | GIRL | TOTAL | BOY | GIRL | TOTAL |
| Similar | 50 | 48 | 98 | 19.2 | 20 | 20 |
| Different | 210 | 192 | 402 | 81.8 | 80 | 80 |
| Total | 260 | 240 | 500 | *76.5 | *66.6 | *71.5 |

* Percentage of students who have had previous camp experience

(4)ii) ENJOYMENT IN COMPARISON TO OTHER CAMPS

| RATING | FREQUENCY (#) | | | PERCENTAGE | | |
|---|---|---|---|---|---|---|
| | BOY | GIRL | TOTAL | BOY | GIRL | TOTAL |
| More | 154 | 192 | 346 | 59.2 | 80 | 69.3 |
| Same | 70 | 38 | 108 | 27.0 | 15.9 | 21.7 |
| Less | 36 | 10 | 46 | 13.8 | 4.1 | 9.0 |
| Total | 260 | 240 | 500 | | | |

Note: All those indicating less still rated enjoyment, question #6, very good or good

6) Did you find the whole experience:
- very good?
- good?
- average?
- fair?
- poor?

| SUMMARY OF RESPONSES | | | | | | |
|---|---|---|---|---|---|---|
| 6) "PERSONAL ENJOYMENT" | | | | | | |
| RATING | FREQUENCY | | | PERCENTAGE | | |
| | BOY | GIRL | TOTAL | BOY | GIRL | TOTAL |
| Very good | 198 | 282 | 480 | 58.0 | 78.3 | 68.6 |
| Good | 112 | 62 | 174 | 33.0 | 17.2 | 25.0 |
| Average | 22 | 12 | 34 | 6.8 | 3.3 | 4.8 |
| Fair | 8 | 4 | 12 | 2.0 | 1.2 | 1.7 |
| Poor | 1 | 0 | 1 | .2 | 0 | .1 |
| Total | 341 | 360 | 701 | 100.0 | | |

Note: Combined "very good" and "good" account for 93.6% of the responses

STUDENT QUESTIONNAIRE SUMMARY (con't.)

7) Considering only the subject areas, rate:

| | V.G. | G. | Av. | F. | P. |
|---|---|---|---|---|---|
| Marine | | | | | |
| Forest | | | | | |
| Sheep | | | | | |
| Bees | | | | | |
| Poultry | | | | | |
| Pulp Mill | | | | | |

The author took this rating scale and assigned each rating a point value. These values were:

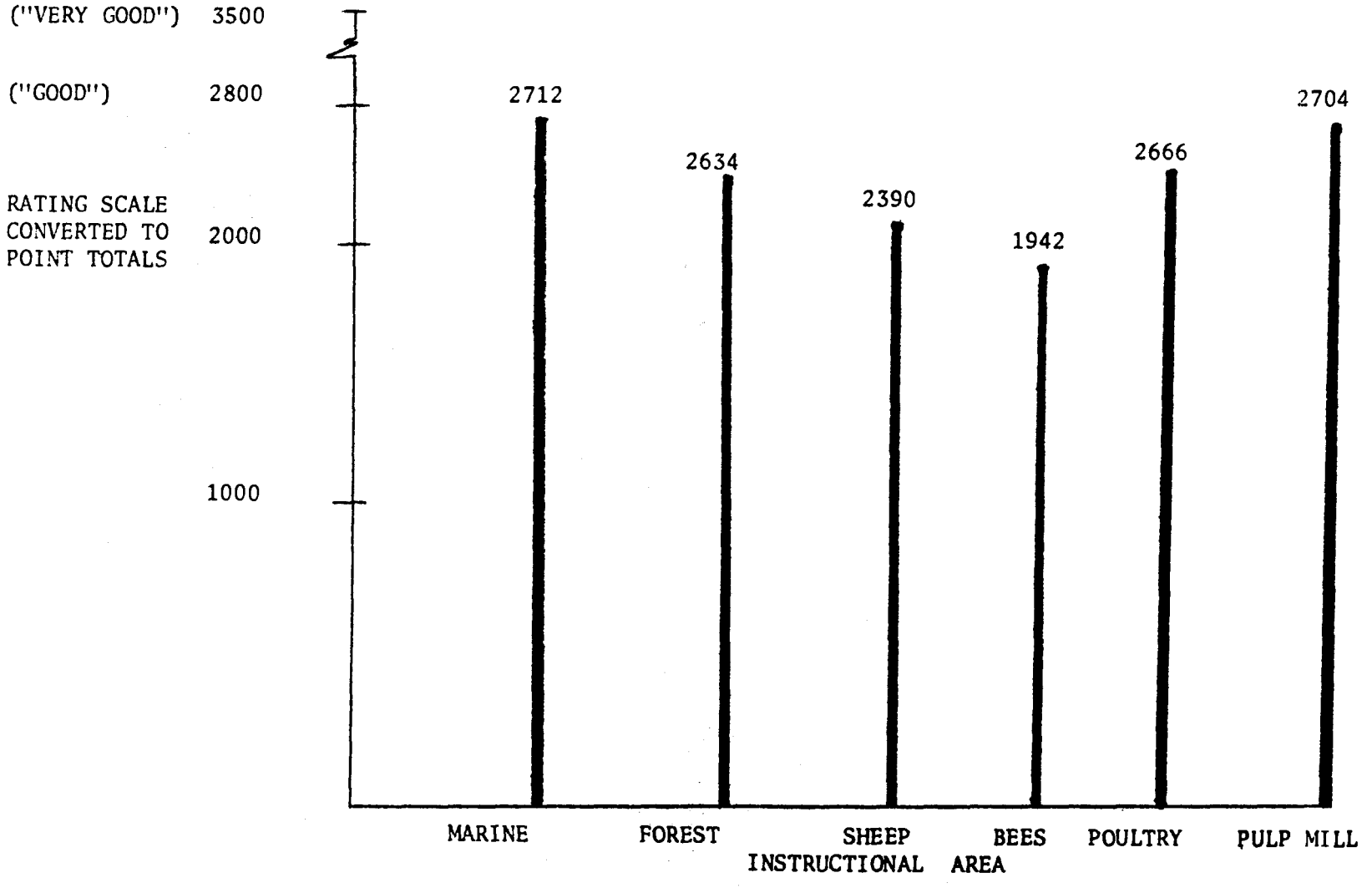
| | | |
|---|---|---|
| Very good | - | 5 points |
| Good | - | 4 points |
| Average | - | 2 points |
| Fair | - | 1 point |
| Poor | - | 0 points |

The following graph was constructed using the point totals from each instructional area assessed by the students. A maximum of 3500 points would be possible if each of the 700 respondants gave a particular area a rating of Very good - 5 points. A rating of Good - 4 for all students would give a possible total of 2800 points. A total of 2100 points would equal an average of 3 points per student.

The author intentionally distributed the point scale in the above manner to try and provide a spread in any particular area receiving more than the average number of poor and fair ratings.

STUDENT QUESTIONNAIRE SUMMARY (con't.)

GRAPH 1 SHOWING RELATIVE TOTAL RATING OF EACH INSTRUCTIONAL AREA BY STUDENT RESPONDENTS



STUDENT QUESTIONNAIRE SUMMARY (con't.)

8) Considering only the social aspects of the programme rate:

Very Good Good Average Fair Poor

A) Accommodations
B) Meals
C) Firesides

8(A) Accommodations

| Rating | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 62 | 67 | 129 | 20 | 18.1 | 18.4 |
| Good | 136 | 145 | 281 | 40 | 40.4 | 40.1 |
| Average | 81 | 90 | 171 | 23 | 25.2 | 24.4 |
| Fair | 30 | 40 | 70 | 8 | 11.2 | 10.0 |
| Poor | 32 | 18 | 50 | 9 | 5.1 | 7.1 |
| Total | 341 | 360 | 701 | | | |

Note: Very good and Good together account for 58.5% of the responses.

8(B) Meals

| Rating | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 251 | 257 | 508 | 74 | 71.5 | 72.5 |
| Good | 68 | 76 | 144 | 20 | 21.1 | 20.6 |
| Average | 21 | 20 | 41 | 5.8 | 5.5 | 5.8 |
| Fair | 1 | 7 | 8 | .2 | 1.9 | 1.1 |
| Poor | 0 | 0 | | | | |
| Total | 341 | 360 | 701 | | | |

N.B.: Very good and Good together account for 93.1% of the responses.

8(C) Firesides

| Rating | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 132 | 230 | 362 | 38.8 | 64.0 | 51.8 |
| Good | 124 | 101 | 225 | 36.5 | 28.0 | 32.2 |
| Average | 48 | 20 | 68 | 14.1 | 5.5 | 9.5 |
| Fair | 27 | 9 | 36 | 7.9 | 2.5 | 5.1 |
| Poor | 10 | 0 | 10 | 2.7 | 0 | 1.4 |
| Total | 341 | 360 | 701 | | | |

Note: Very good and Good together account for 84% of the responses.

STUDENT QUESTIONNAIRE SUMMARY (con't.)

Questions 9 and 10 did not lend themselves to easy tabulation and should have been better designed.

9) Mark the subject areas in which you feel the outdoor school made some contribution to your education. Mark more than one if you think it applies.
   - Social studies
   - Language arts
   - Mathematics
   - Science
   - P.E.
   - Music
   - Art
   - Health and guidance
   - None

10) Which of the following activities do you feel were of Educational significance in the outdoor school programme? Mark more than one if it applies.
   - Free time
   - Field hikes
   - Writing reports and doing individual projects
   - Eating and sleeping in groups
   - Evening campfires
   - Recreational events, example - games, competitions, etc.

11) How do you think you learn best?
   - By studying books and answering questions
   - By listening to lectures and watching films
   - By seeing and feeling things as they exist naturally

| (11) How Do You Learn Best? | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Studying books and answering questions. | 10 | 8 | 18 | 2.8 | 2.2 | 2.5 |
| Lectures | 22 | 10 | 32 | 6.2 | 2.7 | 4.5 |
| Seeing, feeling, doing | 309 | 342 | 651 | 91 | 95.1 | 93 |
| Total | 341 | 360 | 701 | | | |

STUDENT QUESTIONNAIRE SUMMARY (con't.)

12) What is the best way a teacher can help you learn?
- By telling me what to do, and helping me continuously
- By suggesting things to do, and helping me when I ask for assistance
- By leaving me alone to work on my own

(12) Teacher Help (Method of Instruction)

| Rating | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| Direct (Telling) | 5 | 2 | 7 | 1.4 | .5 | 1 |
| Indirect (Suggesting, and help when needed) | 304 | 321 | 625 | 89.3 | 89.3 | 89.3 |
| None | 32 | 37 | 69 | 9.3 | 10.2 | 10 |
| Total | 341 | 360 | 701 | | | |

13) Do you think the outdoor school provided for you with respect to your answers to #11 and #12?

(13) Did the outdoor School Provide For You With Respect To Your Answers To #11 and #12

| Rating | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| Yes | 323 | 355 | 678 | 95.7 | 98.8 | 97 |
| No | 18 | 5 | 23 | 4.3 | 1.2 | 3 |
| Total | 341 | 360 | 701 | | | |

14) Were you able to get assistance from the instructors when you wanted it?

| | | | |
|---|---|---|---|
| Yes | 699 | Percentage | 99.7 |
| No | 3 | Percentage | .3 |

Question 15 should have been better designed and the author could not use the information given by the students. Many students did not answer the question, or answered in all grades.

15) If you had an opportunity to attend an outdoor school at another time what would you consider would be a good age? Give a reason.

STUDENT QUESTIONNAIRE SUMMARY (con't.)

16) How would you rate the grade twelve counsellor/aides?

| (16) Rating of Counsellor/aides | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 187 | 200 | 387 | 55 | 55.5 | 55.3 |
| Good | 99 | 102 | 201 | 29.2 | 28.3 | 28.6 |
| Average | 30 | 38 | 68 | 8.6 | 10.6 | 9.7 |
| Fair | 18 | 20 | 38 | 5.1 | 5.6 | 5.4 |
| Poor | 7 | | 7 | 2.1 | | .3 |
| Total | 341 | 360 | 701 | | | |

Note: Very good and Good together account for 84% of the responses.

17) How would you rate:
(i) Duties
- very good
- good
- average
- fair
- poor

| (17)i) Duties | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 56 | 116 | 172 | 16.5 | 32.2 | 24.6 |
| Good | 135 | 129 | 264 | 39.8 | 35.8 | 37.8 |
| Average | 103 | 101 | 204 | 30.1 | 28.0 | 29.1 |
| Fair | 29 | 10 | 39 | 8.5 | 2.7 | 5.4 |
| Poor | 18 | 5 | 23 | 5.1 | 1.3 | 3.1 |
| Total | 341 | 360 | 701 | | | |

(ii) Rules
- very good
- good
- average
- fair
- poor

STUDENT QUESTIONNAIRE SUMMARY (con't.)

| (17ii) Rules | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 76 | 92 | 168 | 22.4 | 25.6 | 24.0 |
| Good | 134 | 139 | 273 | 39.4 | 38.6 | 39.0 |
| Average | 83 | 92 | 175 | 24.2 | 25.6 | 25.3 |
| Fair | 34 | 26 | 60 | 10 | 7.2 | 8.5 |
| Poor | 14 | 6 | 20 | 4 | 1.8 | 2.8 |
| Total | 341 | 360 | 701 | | | |

N.B.: 5 girls felt there were no rules

(iii) The idea of being at camp with another school
- very good
- good
- O.K.
- don't like it

(A) Table of responses of students attending the outdoor school with another school.

| (17)iii) Rating of Two Schools Together | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | 42 | 118 | 160 | 24.4 | 58.7 | 42.2 |
| Good | 37 | 40 | 77 | 21.6 | 19.9 | 20.8 |
| O.K. | 73 | 38 | 111 | 43.0 | 18.9 | 30.7 |
| Don't like it | 18 | 5 | 23 | 11.0 | 2.5 | 6.3 |
| Total | 170 | 201 | 371 | | | |

(B) Table of responses of students attending the outdoor school with students only from their school.

| (17)iii) Rating of Two Schools Together | | | | | | |
|---|---|---|---|---|---|---|
| Rating | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Very good | | 3 | 3 | | 1.9 | .9 |
| Good | 7 | 16 | 23 | 4.2 | 10 | 7.1 |
| O.K. | 35 | 43 | 78 | 21 | 27 | 24.1 |
| Don't like it | 123 | 97 | 220 | 74.8 | 61.1 | 67.9 |
| Total | 165 | 159 | 324 | | | |

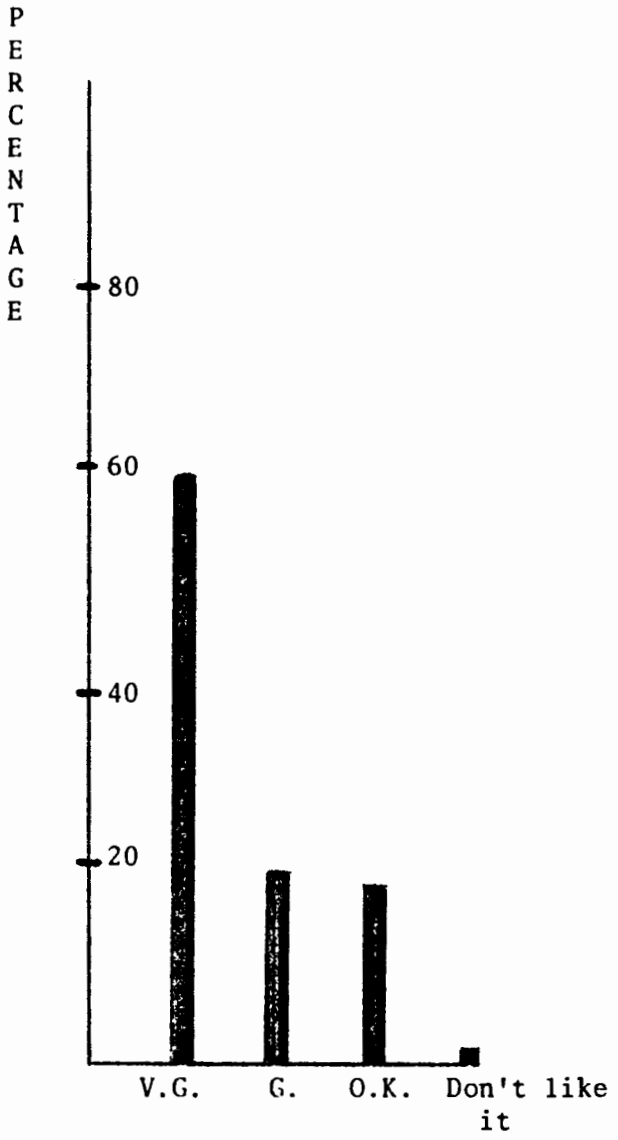
N.B.: 6 boys did not answer the question stating it did not apply to them.

STUDENT QUESTIONNAIRE SUMMARY (con't.)

The following four graphs show the respective responses of each group of students with respect to their sex.

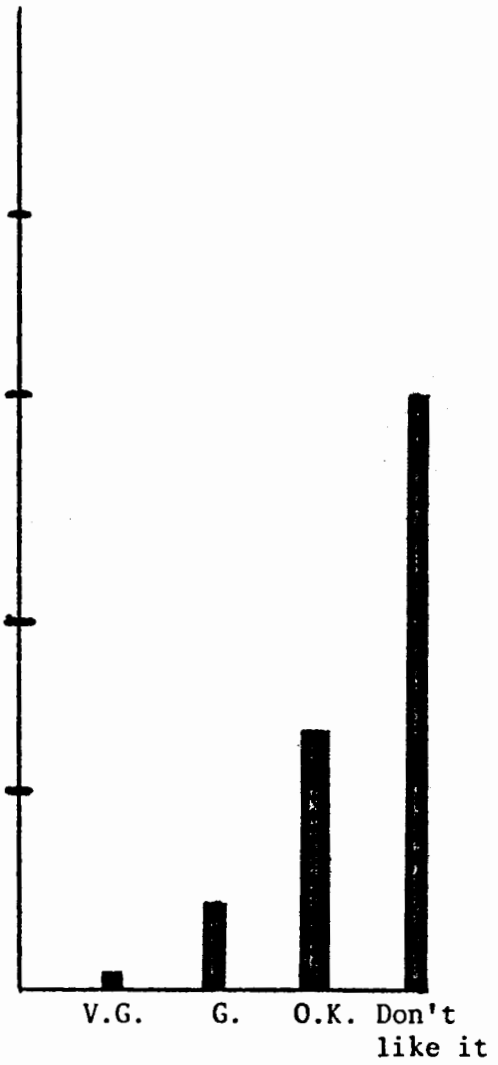
STUDENT QUESTIONNAIRE SUMMARY (con't.)

GIRLS
RATING OF THE IDEA OF SPENDING THE WEEK AT THE RESIDENTIAL SCHOOL WITH ANOTHER SCHOOL




Girls attending the school with another school

GRAPH 2

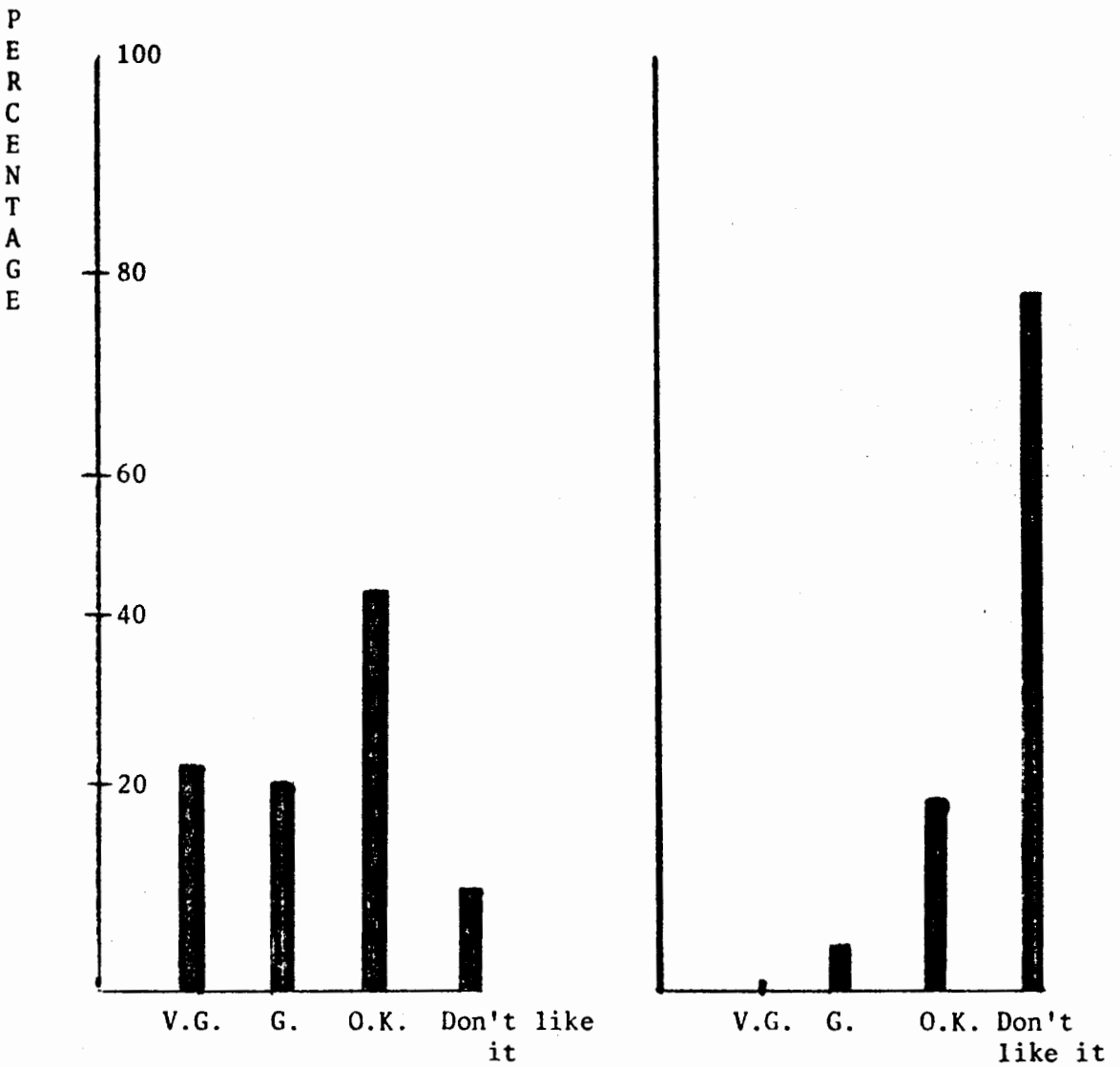



Girls attending the school with only their classmates

GRAPH 3

STUDENT QUESTIONNAIRE SUMMARY (con't.)

BOYS
RATING OF THE IDEA OF SPENDING THE WEEK AT THE RESIDENTIAL SCHOOL WITH ANOTHER SCHOOL




Boys attending the school with another school

GRAPH 4

Boys attending the school with only their classmates

GRAPH 5

STUDENT QUESTIONNAIRE SUMMARY (con't.)

18) What would you do to improve the school? Check more than one if it applies.

- None required
- More time for projects
- More to do on Mondays and Fridays
- Improve the forest area of instruction
- Make it more like school - too much like a summer resort
- Add swimming
- Improve the marine area of instruction
- Add boating
- Add a janitor to help with clean up
- Improve the farm area of instruction
- Add a pond for pond study

(18) Improvements Recommended

| Improvement | Frequency (#) | | | Percentage | | |
|---|---|---|---|---|---|---|
| | Boy | Girl | Total | Boy | Girl | Total |
| More time for projects | 59 | 61 | 120 | 17.4 | 17.0 | 17.2 |
| Improve Monday and Friday | 50 | 35 | 85 | 14.7 | 9.7 | 12.0 |
| Improve Instructional Area: | | | | | | |
| Forest | 30 | 14 | 44 | 8.8 | 3.9 | 6.3 |
| Marine | 9 | 21 | 30 | 2.6 | 5.8 | 4.2 |
| Farm | 22 | 35 | 57 | 6.5 | 9.7 | 8.1 |
| Add Instructional Area | | | | | | |
| Pond | 87 | 72 | 159 | 25.6 | 20.0 | 22.7 |
| Improve Recreation | 122 | 121 | 243 | 36.0 | 33.6 | 34.7 |

Notes: All other choices received less than 2% of the responses. Boating and swimming are combined under the heading recreation in the table.

STUDENT QUESTIONNIARE SUMMARY (con't.)

19) Which statement would you use to evaluate the outdoor school?

| Boy | Girl | |
|---|---|---|
| 14 | 5 | A lot of fun, but little or no educational value |
| 16 | 4 | A good educational experience but not much fun |
| 5 | 0 | Neither fun nor a good educational experience |
| 237 | 283 | A good way to learn school subjects and have a lot of fun at the same time |
| 84 | 94 | A lot of fun and a good way to learn about ordinary living |
| 356 | 386 | Total |

Note: 4% of the boys and 7% of the girls checked the last two choices in their response.

20) Would <u>you</u> go again?

| (20) Would You Go Again | | | | | | |
|---|---|---|---|---|---|---|
| Response | Frequency (#) | | | Percentage | | |
| | Boy | Girl | Total | Boy | Girl | Total |
| Yes | 328 | 356 | 684 | 97 | 99 | 98 |
| No | 13 | 4 | 17 | 3 | 1 | 2 |
| Total | 341 | 360 | 701 | | | |

# COUNSELLOR/AIDE QUESTIONNAIRE

# AND INSTRUCTIONS

## APPENDIX F

Appendix $F_1$: Directions to Counsellor/Aides

Appendix $F_2$: Questionnaire

Appendix $F_3$: Counsellor/Aide Questionnaire Summary

Appendix $F_1$: Directions to Counsellor/Aides

Dear Science Camp Counsellors:

Again let me thank you for the part you played in the first science camp held by the District of West Vancouver.

As a follow up to this camp I would appreciate it if you would take a few minutes of your time and answer as completely as possible the following questionnaire. I want you to be honest with your answers so that if necessary, changes can be made in the future.

When answering the questions, answer yes or no if possible, and only use the question mark if you really cannot make a decision. Comments to illuminate your choice of answer would be useful.

Thank you,

Ed Jackson,
Science Consultant,
West Vancouver, B.C.

Appendix $F_2$: Questionnaire

QUESTIONNAIRE FOR COUNSELLORS OF THE OUTDOOR SCIENCE SCHOOL

1. Did you enjoy your experience as a counsellor of the grade 7's? Yes No ?

comment if any_____

_____

2. Did you think it was a learning situation for your? Yes No ?

comment if any _____

_____

3. Were you treated responsibly and maturely as staff members? Yes No ?

comment if any _____

_____

4. Would you have given of your time and effort for a weekend pretraining session in camp leadership? Yes No ?

comment if any_____

_____

5. Did yourmarks suffer during your absence from school? Yes No ?

comment if any_____

_____

6. Do you think grade 11 students are mature enough to be camp counsellors? Yes No ?

comment if any_____

_____

7. Do you think grade 11 students would be a better source to draw on than grade 12's? Yes No ?

comment if any_____

_____

8. Do you think the programme could be improved with respect to the counsellor role?
(If answering yes or ? please comment). Yes No ?

comment if any_____

_____

9. Did you make sufficient effort to get your marks up to the standard they were before you went to camp? Yes No

comment if any_____

_____

10. What General Comments do you have for improving the programme for participating counsellors?

comments_____

_____

_____

_____

_____

_____

Appendix $F_3$: Counsellor/Aide Questionnaire Summary

# COUNSELLOR/AIDE QUESTIONNAIRE SUMMARY

Number of counsellors participating in the program: 77

Number of questionnaires returned: 68
Nine student/counsellors absent or did not return questionnaire.
Percentage return: 88.2%

1. Did you enjoy your experience as a counsellor of the grade 7's?

1. Did you enjoy your experience?

| Rating | Frequency | Percentage of Respondents | Comments |
|---|---|---|---|
| Yes | 68 | 100 | * 6 Harder than I expected but rewarding |
| No | 0 | 0 | * 28 Enjoyed it greatly |
| Not Sure | 0 | 0 | * 6 Appreciate my brothers more after seeing kids his age |

2. Did you think it was a learning situation for you?

2. Was it a Learning Experience?

| Rating | Frequency | Percentage of Respondents | Comments |
|---|---|---|---|
| Yes | 68 | 100 | * 34 Learned a lot about children |
| No | 0 | 0 | * 18 Learned some natural science |
| | | | * 1 Learned more about my friends |
| | | | * 1 Learned how spoiled some kids are |

* Number of counsellors commenting

COUNSELLOR/AIDE QUESTIONNAIRE SUMMARY (cont'd)

3. Where you treated responsibly and maturely as staff members?

| 3. Treated as Staff? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 56 | 83 | * 22 Equal to the teachers |
| No | 4 | 6 | * 7 Yes, this was surprising |
| Not Sure | 8 | 11 | * 10 By students as well as teachers |

4. Would you have given of your time and effort for a weekend pre-training session in camp leadership?

| 4. Would take part in Weekend In-Service | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 50 | 74 | * 20 It would have been helpful |
| No | 14 | 20 | * 15 Not necessary (Yes) |
| Not Sure | 4 | 6 | * 6 Not necessary (No) |
| | | | * 6 Couldn't. I have a job (No) |

* Number of counsellors commenting

COUNSELLOR/AIDE QUESTIONNAIRE SUMMARY (cont'd)

5. Did your marks suffer during your absence from school?

| 5. Did your marks suffer ? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 3 | 4 | * 1 Yes, but don't care, experience worth it |
| No | 52 | 77 | * 2 Yes, they were suffering before I went |
| Not Sure | 13 | 19 | *15 A week is insignificant - we don't do much in a week |
| | | | * 7 Took a while to catch up |

6. Do you think grade eleven students are mature enough to be camp counsellors?

| 6. Do you think grade 11 students are mature enough? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 24 | 35 | *26 Depends on the individual |
| No | 27 | 40 | * 3 Don't think they could handle the students |
| Not Sure | 17 | 25 | * 5 Some would be better than grade 12's, i.e. more mature |
| | | | * 3 Age difference between students and counsellors would not be enough |

* Number of counsellors commenting

COUNSELLOR/AIDE QUESTIONNAIRE SUMMARY (cont'd)

7. Do you think grade 11 students would be a better source to draw on than grade 12 students?

| 7. Grade elevens a better source? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 4 | 6 | * 3 Not enough are ready for it |
| No | 60 | 88 | * 3 Grade 12's have more commitments |
| Not Sure | 4 | 6 | |

8 & 10. Do you think the program could be improved with respect to the counsellor's role ?

| 8. Could the program be improved with respect to C. role? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 21 | 30 | *17 Could take a more active part in the instructional program |
| No | 37 | 55 | *11 Classroom teachers should be more involved with their students |
| Not Sure | 10 | 15 | *23 Pretraining for counsellors to meet teachers and staff |
| | | | * 5 Counsellors shouldn't be expected to do the amount of homework they were given when they are doing this job |
| | | | * 6 Interview counsellors i.e. handpick them |

* Number of counsellors commenting

COUNSELLOR/AIDE QUESTIONNAIRE SUMMARY (cont'd)

9. Did you make sufficient effort to get your marks up to the standard they were before you went to camp?

| 9. Did you make sufficient effort to catch up? | | | |
|---|---|---|---|
| Rating | Frequency | Percentage of Respondents | Comments |
| Yes | 54 | 80 | * 5 Missed pratically nothing |
| No | 14 | 20 | * 6 Didn't.need to |
| Not Sure | 0 | 0 | * 8 They never went down |

* Number of counsellors commenting

# ELEMENTARY ADMINISTRATORS' EVALUATION REPORT

## APPENDIX G

# OUTDOOR SCIENCE SCHOOL

The following report is submitted at the request of Mr. Don Fletcher, chairman of the Elementary Administrators' Group with the understanding that it will be forwarded to the District Superintendent, Mr. Nelson A. Allen.

Its terms of reference are as follows:

(a) Evaluation of school and programme

(b) Comments on the Langdale Site

(c) Recommendations for the future

In submitting the report the committee recognizes that the Outdoor Science School is in its initial phase, and that many changes will have undoubtedly been thought of by those in charge and those working at the school. The committee is cognizant too of the fact that educational funds are always deficient, and that the establishment and development of a new educational concept, no matter how desirable, always involves the question of priorities. The committee, therefore, excluded the matter of priority from its terms of reference, and confined its discussion to the Outdoor Science School.

For the sake of brevity and clarity the points of discussion have been listed under headings as quoted in the terms of reference.

## EVALUATION OF SCHOOL AND PROGRAMME

### General Comment:

The Outdoor Science School was an experience both enjoyable and valuable to the vast majority of those students attending. Although it was an important educational experience, perhaps it was even more important from a social viewpoint.

### Educational Value:

The students were:

1. Provided with a real opportunity to increase their scientific knowledge by solving real problems in a natural environment.

2. Encouraged in the appreciation of the beauties of nature (both large and small).

3. Encouraged to develop a sense of awareness to natural and scientific phenomena by being exposed to a situation which led to increased awareness and appreciation of the natural environment.

4. Exposed to the critical relaionships which control the ecological balance in nature - the realization that man in seeking to satisfy his needs often upsets the balance of the community with disastrous results.

5. Subjected to a beneficial behavioural influence in the co-operative atmosphere of Camp Sunrise. Certain pupils from whom we expected difficulties were surprisingly co-operative.

6. In some cases students were noted to display a continuing and increased interest in science at school following their week in camp.

7. In many cases they were noted to display a continuing improvement of attitude toward science studies after the return to school.

8. Exposed to conditions which stimulated imaginative, creative and independent effort in close harmony with their peer group and a friendly interested group of instructors.

Social Value:

The children responded to:

1. An experience of group living which is comparatively rare in the life of the modern school child. While some disapproved the majority responded well.

2. The total exclusion of T.V. and radio. Children had to draw on their own resources for entertainment and moments of leisure. Campfires proved to be excellent. (More could be done with the organization of games).

3. The mingling with young adults (counsellors, staff and teachers). An informal out-of-the-classroom basis established an excellent rapport which is difficult to obtain under regular school conditions.

4. The interest and help of those teachers who enjoyed the experience in a way which could only strengthen the influence of the teacher on his return to regular classes.

Summary:

The committee agreed that while the value of the science subject matter was commendable, the total involvement of students living together, eating together, playing together and working together made the project an important and enjoyable experience in socialization.

COMMENTS ON LANGDALE SITE AND SCHOOL

As previously stated the comments following are given with the full realization that the Outdoor Science School in its initial stages would, of necessity, require many adjustments. Therefore, it should be clearly understood that no criticism of any member of the staff is offered or implied in the accompanying notes. On the contrary, it is our opinion that all deserve much commendation for their untiring efforts under less than perfect conditions.

1. The administration of the school appeared to lack positive direction. Overlapping areas of leadership and the lack of clearly defined responsibility could lead to friction between important staff members.

2. While on the whole, secondary school counsellors did a fine job, there were those who:

   (a) lacked enthusiasm and spontaneity for their duties.

   (b) looked upon the experience as a holiday from regular classes.

3. Cooking facilities at the school were good. Pupils should continue to be involved with kitchen, dining room and dormitory chores.

4. Is it not possible to allocate sanitary arrangements of toilets to the camp custodian?

5. Movement of student luggage to and from camp was difficult.

6. Field trips required too much time for transportation. Private cars were often used beyond capacity.

The Programme.

The committee agreed that the programme in general was good and in keeping with the theme, The Web of Life. It is recommended that it would be desirable to broaden the content to include other areas of study than science, for example, at some future time the theme could be changed from science to art, geography or some other important area of the curriculum.

General Comments:

1. The programme should be broadened to delay depletion of an area given over to intensive study.

2. Science programmes should be geared to seasonal and tidal changes. Bees, for example, are active in September but not in November.

3. "On site" activities could be increased by locating some animals and poultry at the camp.

4. Criticial comments re the lecture on bees and sheep have been brought to the committee's attention. This could have been given at the camp under better physical conditions.

5. Lecturing as a method of teaching should be kept to a minimum. A much more effective approach involves seeing, feeling, doing, along the lines suggested by instructors.

6. The free time period could be made more enjoyable if:

   (a) books, games, puzzles, etc., were available for those wishing to use them in a quiet area.

   (b) some recreational equipment was provided.

   (c) children were encouraged by the presence of counsellors in the recreation areas during free play time.

7. Evening campfires were happy free experiences which must be rated as one of the better features of the camp.

8. The attendance of students from two different schools did not encourage fraternization to the degree expected.

9. In schools where one group attended camp, while another was left at school, the resulting disruption of the programme was anything but desirable.

10. Specifics:

   (a) Forest: Very good. It was on site. It offered variety. It provided independent pupil activity and materials.

   (b) Marine: Because it was off site it prohibited involvement and provided limited project activity.

   The beach was poor at all times, and activity at Roberts Creek was restricted by tides and transportation.

   (c) Pulp Mill: Gave children a chance to witness pollution.

   (d) Farm:

   Sheep - Children were able to see and feel the animals.

   Bees - Although bees are of great interest this proved to be the most highly criticized area due to lecture, lack of activity of bees and poor location.

Poultry - Interesting. Would be more effective on site.

Comment: The "farm" itself was in effect a poor example and should be upgraded.

(e) Project: Individual project work was perhaps the best part of the entire programme, although more time should be added.

## RECOMMENDATIONS FOR THE FUTURE.

### I. Administration of the School:

Comment:

There appears to be three clearly defined areas of activity in the school. These are:

(a) The Educational Programme

(b) The Non-Educational Programme

(c) Camp Management

It is imperative that the chain of authority and responsibility should be clearly designated and placed in the hands of one man, the Director, who shall be responsible to one senior education official.

1. Director:

This person should have a thorough understanding of the goals of the school and experience in camp management. He should be a good administrator with the ability to obtain complete co-operation from his assistants during the long and arduous period of relative isolation and continuous exposure to children. He should assume direct responsibility for one area of activity, for example, the Educational Programme. The other two areas should be delegated to his assistants.

2. Assistant Director:

A person in charge of the non-educational programme, games, entertainment, etc. The programme and its operation should be subject to the Director's approval.

3. Assistant Director:

A person in charge of camp management, food, cooks, custodian, sanitation, etc., subject to the Director's approval.

4. Group leaders:

These people are directly responsible to the Director and his assistants.

5. Counsellors:

The secondary school students acting as counsellors should be completely relieved of school assignments during their week at camp. They should be chosen from the secondary school which accepts children from the elementary school at camp that week, or at any rate drawn from all high schools. (Why were all secondary students drawn from West Van? Would not students other than Community Recreation students benefit from this experience?)

Comments:

1. Because of isolation, long hours of exposure to children (7:00 a.m. to 10:00 p.m.) and frequent repetition of assignments, regular staff members should be given a mid-term break of at least one week's duration.

2. Student teachers from the University could be changed during the mid-term break. The committee has a genuine concern re the role of the student teacher in camp. Should there be some fully qualified teachers on site?

II. Transportation:

1. This was one of the larger problems encountered in the camp. A van based "on site" would be a most useful addition to a future camp.

2. Would it be possible to have a truck pick up luggage from the dock and transport it to and from the camp?

3. Field trips required too much time for transportation. Private cars often used beyond capacity. In the event of an accident where does the responsibility lie?

4. Transportation should be reduced to an absolute minimum. This could be accomplished by more "on the site" projects if a more suitable location was available.

III. Priority, Liason, School Staff.

1. Although the question of priority was avoided by the committee as not being within the terms of reference, it should be noted that two of the five members voiced opinions which would indicate disapproval of continuing the Outdoor Science School without massive readjustments. It is, therefore, suggested that an assessment of priorities be undertaken by those who are fully informed as to moneys spent and values accrued.

2. It is imperative that a close liason between the schools and the camp should be established well in advance of the opening date. This will enable the school to integrate the programme with lessons at school, and provide for suitable follow up treatment after the return from camp. We envisage the camp as an outdoor extension of the school.

   In future, principals and teachers should be fully informed of the plan for scheduling of visits. This year many were not aware of the existence of the school until after some schools were booked.

3. Planning in detail should be completed well in advance of the first visit, and an in-service programme for teachers be held in advance - preferably on the site.

   Close liason should be developed with class teachers to clarify:-

   (a) the programme

   (b) the teacher's role while in camp

   (c) responsibility for discipline of pupils

4. The problem of providing supervisory teachers from the schools should be given further study.

   (a) Are they required at all?

   (b) Is it right that teachers be required to leave home for a week? Not all will be willing.

   (c) The realization that the teacher's attitude influenced the success of the visit is important.

   (d) What if teachers refuse to go?

5. More time should be set aside for the completion of studies undertaken at camp. Not all children are interested in all areas of work undertaken. Time to complete projects in the chosen area should be arranged.

IV. The Site - General.

The site at Langdale was not suitable for the needs of an Outdoor School. It had the convenience of being relatively close and provided reasonable facilities for housing pupils. The committee urges most strongly that an alternative site be investigated.

A good site should embody -

(a) better housing for smaller groups.

(b) ready accessibility to sources of interest.

(c) a "feeling" of isolation.

(d) an area rich in variety of experiences on site, requiring no transportation.

(e) buildings for -

(i) cooking and eating.

(ii) large group meeting, and games in rainy weather.

(iii) Lab. facilities, study areas: a place for quiet recreation.

(iv) sick bay.

(v) suitable accommodation for staff with a small recreation area for staff attached.

(vi) separate accommodation for supervisory teachers.

H. G. Dickson
R. V. Fenwick
R. F. Fox
M. McMechan
B. E. Stigant

# STUDENT TEACHERS' EVALUATION REPORT OF LANGDALE PILOT STUDY

APPENDIX H

Mr. Ed. Jackson,
Teaching Associate,
Simon Fraser University,
Burnaby 2, B.C.

Dear Mr. Jackson;

Our teaching experience at the Outdoor Science School has taught us a great deal about students, how they respond to us, and most importantly, how we respond to them. There is no doubt in our minds as to the effectiveness of this type of education. It is impossible to duplicate the resourses we have in our environment such that we can take them into a classroom. By taking a segment of the outdoors into a classroom, the student cannot appreciate its significance to his environment. The converse of taking the classroom to the outdoors is far more beneficial to the student in-as-much as the student can relate what he sees to his own very presence in that particular area.

Generally, we feel that our program was a success for every student that took part. Certainly those groups that came to our camp prepared for the facilities that we had to offer did gain more academically about the web of life than those students who were not prepared before-hand. By this we are not inferring that we wanted every student to grasp the concept on the web of life, but to get an appreciation of how important the outdoors are to him and to the rest of us. However, this does bring up some points about our program that were perhaps a little weak, and may be improved upon.

The Site: We feel that there was a lot to be desired about our particular location. In particular, our concerns were not of the accomodations but more of the large 'play area' (which was useless to us), and the East and West boundaries i.e. the beach and the road. The road was at all times a potential hazard for obvious reasons, and never once did we feel at ease with having the students up there with us. The eastern boundary proved to be of little use to us even at low tide. There was no sedimentary rock in the area, and hence there were no tidal pools or areas where students could see an abundance of marine organisms. Another aspect to this site was that of the distance between our camp and the Marine area that we used for study. For example, if a high tide fell during the day, it was impractical to transport the students to our study area near Roberts Creek in the early hours of the morning. Even Roberts Creek was not that good of an area for studying Marine life, even at low tide.

Our suggestions to this are obvious. Surely there must be other locations that would be just as easy to get to as our present one, and yet offer more. Perhaps some locations on Vancouver Island could be looked into as possible areas. Also, we think it is imperative that the outdoor school be given a bus capable of carrying all the students. No matter where the site is, a bus would be invaluable

since it would be available at any time. A bus would also open up the scope of the school in terms of showing the students our various industries at work. Logging, booming, paper making, fishing, farming, mining, and so on are but a few of some of the side trips that could be arranged for those that were interested.

Mondays: Perhaps this is an un-fair thing to state, but we feel that much of our Orientation program was neither adequate nor stimulating to the student. In fact, our Orientation program struck us much in the same way as the first lunch (hot dogs) on Mondays struck you. Any of the techniques taught there could have been shown to interested parties quicker, and just as effectively in any one of the three principle study areas.

Although our suggestion here may be weak, we think we would be much further ahead to give a more comprehensive introduction, including what was expected of them, ourselves, and of their own teachers. An introduction was always given, and for all intents and purposes it was good, but it still lacked a thoroughness. In the afternoon, rather than showing them techniques, perhaps it would be worth-while to have one teacher to each of the six groups for discussions. This would be a parallel to Ed. 402, where there is a mass lecture in the morning, and many small discussion groups talking over lecture material that was given in the morning. Perhaps this would give each student a chance to evaluate his own presence there, and to give him some direction for the rest of the week. Another possibility could be to take the students on a tour of our areas of study and to show them what we had to offer them. Again, this might stimulate an interest in a particular area for a student, and give him some scope of what he may pursue for that week.

As we will mention in our next section, the role of the home room or Science teacher is very important to the success of our camp, and particularly on Mondays. This is the time when he or she can use his resources and the materials to help create an interest in the student, and to recall to memory some classwork that may be applicable to get the student started.

The Role of the Home Room Teacher: As you mentioned, and as everyone else has commented, there is a definte need for an in-service training program for the teachers who would like to come to our camp. Because of the hurried nature of getting our camp on its feet, the in-servicing was sacrificed, and everyone understood the circumstances. However, what would have been good for us would have been to sit down and describe each of the areas, and where we put our emphasis. Could these have been collected and duplicated for all prospective teachers, perhaps some of the staff that accompanied the students could have been a little more helpful to us.

We found from our experience that the only teacher who could adapt himself to what we were doing, was the teacher who was actively engaged in taking groups of students on hikes and field trips back in West Van. The remainder of the teachers were either afraid to say anything for fear of hurting our feelings because he butted in, or they were afraid to say anything because they weren't sure of what they had to say. Now I'm not saying this to be sarcastic, but I think generally it is true. For those teachers that came only because they had to, I feel sorry for them, and I feel sorry for the students. Surely this is one of the obligations of a teacher - to be inconvenienced once in a while - but surely one could make the most of a situation once you are into it.

Further, it should be emphasized to every teacher that a school such as ours is only another resource for them, much like their school library. Also, it should be noted that every teacher that comes over has something to contribute. Even if the teacher's field is music, art, or social studies, he can still inspire a few of the students, or in the very least, help guide some students by using their ideas.

The Role of the Permanent Staff: We think that one of our major problems at the outdoor science school was that there were too few of us to go around. Ideally, if the students and the staff were better oriented before they arrived, we think our pace would be far less than it was last Fall, and perhaps our work would be far more rewarding. Indeed, we were frustrated time after time because in trying to explain something to one student, we would be sacrificing two others by not getting the materials that they needed. If only we had more staff we feel that our camp would have been even more successful than it was.

In terms of ourselves, we think it is imperative that we take a leading role in each of the resource areas in showing everyone the various types of interactions. In the 'project' time however, we think we should act only as resource people, and that the home-room teacher should circulate throughout the lab area to talk to each student individually. In this manner, we would be much more at leisure to take interested students back to areas of interest, or into new areas altogether. In short, there would be more of us to 'go around', and hence, everyone would be happier. Also, the students would probably feel much more at ease, and would probably produce more, if their teacher were nearby.

The Counsellors: We don't think we can expect these people to come into the subject areas if they do not wish to do so. It seems to us that they have a big enough job in looking after them at meal times and after dinner. One of the reasons for this, is that they are still students and they do not feel competent enough to speak out. These same counsellors are also usually quite booked up with their own work for school, and I don't think its fair to take all of their time, even though they are all volunteers.

Fridays: Basically, we think our approach to the final day of our camp was sound and beneficial to the students. However, like Mondays, perhaps it could have been a little more thorough in terms of the summary, and perhaps just a little bit more organization for the actual clean-up would have made all the critics much happier. Maybe a statement of the obvious is not out of place here - the day is Friday, and the students are excited about going home.

The Director: This is about the most important single entity of the entire Outdoor Science School, since he is the liasion between so many people. We believe however, that he should be an educator even though his role at the outdoor school should not be to teach. By this, we are suggesting that he should not be tied down, but rather be free to scout for new potential areas, to aid in getting new ideas together, and to be able to enter into any one of the subject fields and take over if necessary.

Other Suggestions: Hopefully when the School resumes this spring, many of the small problems will be worked out, but even if they are not, we think there should be much more feedback from the schools and from the students coming back to the camp. We found much frustration in not knowing about how effective we'd been in any given week. Also, if and when you establish a permanent site, we think it would be well worth considering the building of a huge marine aquarium, something in the order of ten feet by ten feet by four feet. By circulating it with clean salt water, there would be no problems of keeping the temperature constant, and you could always keep an abundance of marine organisms on hand. The tank could also double for the marine environment when the tide was excessively high, and, being an ecosystem, it would in itself be a subject for discussion.

Undoubtably, much of what we have written here has already passed through your mind, or perhaps been stated by someone else in other words. However, we hope that you will find some of our suggestions helpful and worthy of some consideration.

Again, we would like to take this opportunity to thank you for asking us to be a part of the Outdoor Science School.

Yours truly,

# UNSOLICITED TEACHER AND PRINCIPAL LETTERS

## APPENDIX I

## POINTS OF VIEW ON THE OUTDOOR SCIENCE PROGRAMME.

POINTS:

The Outdoor Science School was a good experience for the pupils of Grade VII. There is no doubt in my mind that the pupils gained a most in valuable experience socially by interacting with each other for five days.

But even more important I think is the fact that they gained a great deal from a scientific point of view.

Considering that the central theme of this scientific experiment was "The Web of Life", a theme which is very intimately connected with the Science of Ecology, I thought that there was sufficient provision made to give the required vicarious experience necessary.

The fact that pupils were able to actually visit areas of water pollution and later return to a "laboratory" and confirm this was very fascinating to them.

The work in the forest and marine biology also opened up new vistas to many who were able to set up their own problems and later experiment to try to confirm or negate their predictions.

SOME DRAWBACKS:

The visit to the farm was a good idea. However, I felt that it was not structured sufficiently. Many pupils, for example, thought that the time spent listening to techniques on the raising of bees could have been spent elsewhere, e.g. learning more about reproduction in the animal kingdom. This could have been made more meaningful by probably better use of the lambs.

The visit to the hatchery was also somewhat loosely structured. I felt that if concepts of embryology were to be taught, that at least microscopes could be set up at the hatchery as well as more information of the whole process of chick embryology. However, considering the number of personnel available to work with the pupils, it was almost impossible for the instructors to divide themselves up adequately to have a better pupil-instructor ratio. Consequently the teachers accompanying the class were an added assistance provided they, the teachers, were adequately prepared for this kind of work, and were willing and enthusiastic.

It was quite apparent from comments made that this situation did not always exist with every school which came to the camp.

Another drawback I found was that students did not have enough supervision and guidance once they had chosen their projects and had begun to work on them.

Many students also found that they did not have sufficient time to complete any one chosen project. However, some of these projects were so structured that pupils were able to complete them on returning to school.

All things considered, I felt that the Outdoor Science School was a success. I

hope that it will be continued.

P.S. It would be a very stimulating experience for the Grade Six pupils also.

E. Adams.

## OUTDOOR SCHOOL IMPRESSIONS.

Generally speaking the Outdoor Science School was a tremendous success. The staff, students and counsellors seemed to be able to work well together despite wet weather.

It was obvious that some students, who are low achievers in a regular classroom situation, seemed to have derived much from the experiences they encountered. I feel that education had meaning for, and was relevant to many students for the first time.

The programme was varied and relatively well run. Time seemed to be the critical thing especially because many of the projects had to be done away from the camp. This meant that much time was involved in transporting students.

The farm section of the programme I thought, created the most interest along with the collecting of animals and insects.

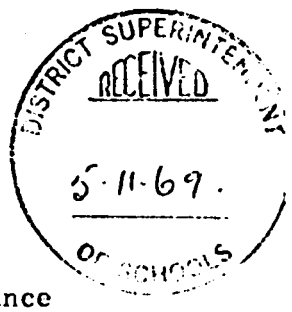
The food was excellent - well planned and nicely prepared.

I.Taguchi.

To: Mr. Edwin Jackson,
Science Co-ordinator,
School District #45

cc: Mr. N. A. Allen
Dr. L. P. Sampson

From: Mr. Cyril Scott &
Mr. Gary Armour
Grade 7 Teachers, West Bay School.




REPORT ON WEST BAY TEACHERS' EXPERIENCE
AT THE OUTDOOR SCIENCE SCHOOL
OCTOBER 20-24th, 1969

LOCATION

Good, but a site providing tidal pools within walking distance would be even better.

FACILITIES

Good.

STAFF AND STAFF LOAD

The staff were very good and hardworking, but overworked, and the pace was beginning to show.

ROLE OF ACCOMPANYING TEACHERS

This was never clearly defined. It seemed that we were really needed only at mealtimes and bedtimes. It was interesting to take part in their lessons, but little help by the teachers in these was needed.

ACCOMMODATION AND FOOD

The food was of a good standard. Accommodation for students was adequate. Accommodation for accompanying teachers was poor in that they had no private room except their bedroom, furnished only with beds. A light sleeper had no chance of a good rest, and it seems unreasonable to expect teachers to leave their families in order to live in these conditions.

PROGRAM OF INSTRUCTION

Very good. The only possible weakness lay in the freedom given to students, during afternoon periods, to work on projects of their own choice. Many preferred to play on swings or loaf around at these times.

PROGRAM OF RECREATION

Good.

DISCIPLINE

This was the area which caused us great concern. From the start, it was not clearly established whether camp staff or accompanying teachers were to be responsible for discipline. There probably was a great deal of frustration which resulted from neither party wishing to interfere with the other.
We believe that an outdoor school of this nature badly needs a resident director who would set a standard of discipline to which all schools would be required to conform. We also believe that the project would benefit greatly if additional experienced teachers were added to the staff.

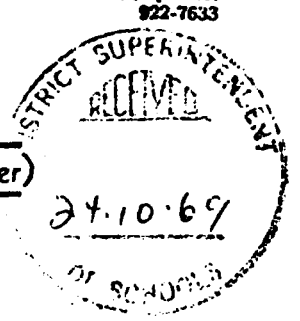
Office of
The Principal

Telephone:
922-7633

SCHOOL DISTRICT 45 (West Vancouver)

WESTCOT ELEMENTARY SCHOOL

760 Westcot Drive — West Vancouver, B.C.




October 21, 1969

Mr. H. Allen,
District Superintendent of Schools,
School District #45,
1075 - 21st Street,
West Vancouver, B. C.

Dear Mr. Allen:

Re: Outdoor Science School

The comments which follow are based on my experience at Gambier last June, the experience of our first Langdale group this fall, the opinions of [illegible] teaching at these, the feed-back from pupils and parents, personal visits to both Gambier and Langdale, discussions with Dr. Perry and Mr. Jackson, and a good deal of reading. These comments are made in the hope that they may prove of some value to the Board both at this time and in long-term planning.

First, I believe that the concept of Outdoor Education in various curricular areas and particularly in the field of science is sound. The pupils have positive opportunities for: (a) gaining knowledge of their natural environment
(b) developing appreciation for the beauties which surround them
(c) gaining insights into the crucial relationships which exist among the various living organisms, including human beings (ecology)
(d) growing in social relationships
(e) developing personal independence.

With respect to the Langdale operation I feel that Dr. Perry's enthusiasm and Mr. Jackson's biological knowledge and teaching experience have been significant factors in its evident success.

For the reasons stated above we are most anxious to see the concept continued and expanded.

The following questions are respectfully offered

(over)

for Board consideration:

(a) Would it be preferable to have a site from which the pupils can walk for all activities? The present site, to be used effectively, involves daily transportation which is expensive, time-consuming and, possibly, limiting in terms of flexible time-tabling. If this or a similar site is to be used then perhaps the Board may wish to consider, say, a 70-passenger bus of its own.

(b) Would the operation be improved educationally and socially through the provision of prior consultation with and in-service for participating classroom teachers and high-school counsellors?

(c) Does the chain of authority need to be examined and re-defined vis-a-vis permanent and temporary staff?

(d) Is there a place, perhaps, for additional student teachers? A full time janitor and/or handyman? Another professional on-site teacher?

(e) If the Outdoor School is thought of as an integral and continuing part of education in this District should some thought be given to suitable physical amenities for professional staff, both permanent and visiting?

I would expect that the Board has already received or will receive similar or other ideas, from myself or other "Education Office" personnel, from the Outdoor School's permanent staff, and from other Schools. Hopefully, a preliminary of and sorting out of these ideas will result, over a period of time, in fully-balanced activities which can be effectively integrated with each participating school's overall yearly programme.

It is realized that the matters raised herein reflect personal opinion. It is further realized that they involve time, organization, Board policy, and, of course, economics.

I would appreciate it if you would place the matters in this letter before the Board at the appropriate time. Thank-you.

Yours truly,

M.Y. McKechnan
Principal

MYM/bt

Office of
The Principal

Telephone:
922-9348

SCHOOL DISTRICT 45 (West Vancouver)

HOLLYBURN ELEMENTARY SCHOOL

1329 Duchess Avenue — West Vancouver, B. C.



September 5, 1969

Mr. H.A. Allen,
District Superintendent of Schools,
School District #45 (West Vancouver),
1075 - 21st Street,
West Vancouver, B.C.

Dear Mr. Allen:

On Tuesday of this week I received a booklet entitled "The Outdoor Science School". The material contained within this booklet adds as much to a science programme in the school as any material I have seen. I think Mr. Ed Jackson has done a great deal of work, and I would like him to know how much, as an administrator in the schools, I appreciate the job which has been done.

I must confess to having been quite disturbed at the speed with which the Board wished to set up an outdoor school in the District. However, I was greatly relieved when I saw the amount of work that had gone into the booklet I received. The work that Mr. Jackson has done is excellent and will add greatly, I am certain, to our science programme at Hollyburn School.

Yours truly,

R. Brown
Principal

# LETTERS RECEIVED FROM PARENTS

APPENDIX J

531 Eastcot Road
West Vancouver, B.C.
5 November 1969

Mrs. E. W. Ross
Chairman
West Vancouver School Board
1075 - 21st
West Vancouver, B.C.

Dear Mrs. Ross:

I have a daughter in Grade 7 who has just returned from a week at the outdoor school at Langdale. As a result of her most enthusiastic reports on the week I thought I would send you a note of congratulation to the School Board and those members of the staff responsible for this new program.

From our daughter's comments and from those of the parents of other students who have attended the camp this fall I would think the camp is one of the most successful innovations developed by the School Board in recent times. While the students enjoy the camp and report that everything is extremely well organized the most important aspect of the program is the imagination and enthusiasm developed by the students for the various subjects covered during the week. It will take some time to determine the lasting effects of the program but I personally believe those students fortunate enough to have attended will certainly benefit in variety of ways for years to come.

A typical example is the current interest in pollution which until they attended the camp was a somewhat abstract word for most of the students. After seeing for themselves the direct results of pollution the students are keenly interested in the subject and for the first time are motivated to read and understand the articles in the various printed media dealing with this subject. Not only is this of benefit to them as students but also as young citizens. I think the same comments apply to a number of the other subjects covered during the week.

As a parent and taxpayer in West Vancouver I completely support this program and urge you to not only continue it in the future but to also consider the possibility of extending the program. Such an extension might include a second field trip in say Grade 8 or 9 where more advanced subjects could be covered and in addition some thought should be given to a similar type of approach for other subjects. I realize it may be difficult to create the same atmosphere and level of interest for a subject such as mathematics or english but in the case of mathematics possibly you could consult with a firm such as

International Business Machines, which is directly interested in the subject, to develop some type of interesting 2 or 3 day seminar at the Grade 8, 9 or 10 level.

Regardless of any further extension to this type of approach to education there is no question of the success of your efforts on the Langdale program and while you may not have heard from all of the parents of students involved to date, I am sure they would support my personal word of appreciation and thanks for your vision and efforts on this program.

Sincerely

W. A. Dow

Cover Point, R.R.1.

Gibsons Landing B.C.

November 28 1969.

Mrs Enid Ross

Chairman, Board of School Trustees

West Vancouver B.C.

Dear Mrs Ross,

I have recently had the privilege of visiting the West Vancouver Outdoor Science School at Cheekeye and must write briefly to congratulate you and the West Vancouver School Board.

I do appreciate the difficulties faced with which school boards are faced at this time in finding money to support worthwhile projects such as this, especially as their value may not be fully understood by the general public.

In recent years we seem to have overlooked what are to me the basic tenets upon which any educational system must rest. Namely that you must begin with the child where he is now and work out from there to widen his horizons and that he learns by doing. If we don't base our education this way the child finishes up with a fine junk collection of unrelated facts which he often finds quite irrelevant to life. Your endeavour to give these children a deeper understanding of the area in which they live and of the interdependence of all living things will provide them with a solid foundation on which to build and ( if this isn't a mixed metaphor) a springboard to acquire more knowledge and understanding of other parts of the world and their particular problems. They are also being encouraged to make and record their personal observations, the basis of any scientific study.

I believe that we are finally coming to see the importance of understanding our environment and the first requirement is to know and appreciate its beauty and complexity. I have been appalled while my own children were going through school to realise that although their textbooks covered a wide range of scientific knowledge this was mainly an accumulation of academic material without any relation to their everyday lives, and they were going to finish school without an understanding of their immediate surroundings. They would know the migratory habits of the arctic tern but not be able to recognise a junco, they would have read about Redwoods in California but not be able to recognise the firs, balsams, hemlocks of their own forest. If they had good memories they'd be able to throw around a lot of high-falutin scientific terms but wouldn't know which of the wide variety of local fungi are edible.

Of course a week isn't long enough to more than scratch the

surface and results may be hard to evaluate immediately and even harder to understand for those who were not able to see and feel for themselves what was going on. Without doubt there would be some children in each group who would go through the whole week without perhaps showing any espark of real interest, perhaps their home backgrounds had not provided anything which could make this experience relevant for them, but they now will have something upon which to base future experiences and who knows what may blossom at a later date? I was impressed with the friendliness of your children, their enthusiasm and eagerness to share their findings with any stranger who might happen along. Within minutes I was involved with three different groups all eager to use me to help them get further information.

There are of course a great many other benefits to be gained from a camp such as this, not the least of which are the social lessons to be learned from living in a group situation; of how to get along with others on a longer term basis, of the fun of sharing everyday chores, of pulling your weight in a group situation; of providing their own entertainment and being thrown back on their own resources. It is impossible to evaluate what any given child may get out of such an experience but certainly the West Vancouver School Board should be highly commended for providing the opportunity for so many children and perhaps of even greater importance the opportunity for teachers and university students to appraise and evalue such a program.

I do hope that inspite of present day financial difficultion means will be found for you to continue this out of doors school, not only for the benefit of the children of West Vancouver but in the hopes that the importance of what you are doing will gain recognition in this school district also.

Yours sincerely,

Copy to Mr H. Allen, Superintendent.

3311 Westmount Rd.
West Vancouver. BC
Oct 29, 1969.

Dear Mrs. Ross.

May I take this opportunity to thank the West Vancouver School Board, Mr. Pat Perry and Mr. Ed Jackson for making it possible for the Grade 7 students at West Bay School to attend the Outdoor School.

My daughter Janice attended and enjoyed it thoroughly — came home full of enthusiasm for the program and the instructors.

Sincerely