

A STUDY OF THE EFFECTS OF AN OUTDOOR
EDUCATION PROGRAMME ON THE ATTAIN-
MENT OF CERTAIN EDUCATIONAL
GOALS

Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Degree of
Master of Education

University of Manitoba
Department of Educational Administration

by

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June 1976

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ACKNOWLEDGEMENTS

I wish to express my appreciation to Dr. P. J. Husby, thesis advisor, Professor S. Seim and Dr. J. A. Riffel, committee members, for their invaluable guidance and advice during the preparation of this thesis.

Sincere thanks are extended to the Junior High teachers at Laidlaw School for their cooperation and assistance in developing and implementing the experimental programme.

Last, but not least, a special thank you to my wife, Yvonne, for her encouragement and for her many hours of clerical assistance.

ABSTRACT

The purpose of this study was to determine whether or not a public school programme, emphasizing the extensive use of Outdoor Education, affected student development in three areas: academic basic skills; attitudes to formal education; and study habits.

Experimental and control groups of Grade 7 students were established at two public schools in the same school division and a matched-pairs pre-test, post-test design was developed. Standardized tests measuring student development in each of the three areas being considered were administered prior to the implementation of the experimental programme, and students in the two groups were matched by scores on these tests, by sex, and by personality characteristics, including intelligence, determined by responses to a standardized personality questionnaire.

The experimental programme extended over a period of eight months and at its conclusion the same standardized tests were administered. Difference scores were calculated for each matched pair in each test and their significance was computed using the Wilcoxon Matched-Pairs Signed-Ranks statistical test.

The results obtained by the experimental group in each of the three standardized post-tests were better than those obtained by the control group, and in each case the difference was highly significant.

It was concluded that Outdoor Education had desirable effects on student development in the areas considered, and that it should be a component of the regular public school programme.

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CHAPTER I

STATEMENT OF THE PROBLEM

In recent years many schools in the Province of Manitoba have attempted to implement programmes designed to help achieve the goals of the school through Outdoor Education. As the apparent success of those programmes became more widely known, more teachers have been tempted to make a greater committment of time and money to become familiar with the philosophy and goals of Outdoor Education and, with the encouragement of the Department of Education and some school boards who are providing financial incentives, include Outdoor Education in their teaching methods.

At the same time, reaction by sections of the public and some educators to educational methods deviating from the traditional have manifested themselves. Concerns have been expressed that Outdoor Education is not valid for the school, that public money should not be used to finance it, and that it will have a detrimental effect on the traditional goals of the school.

There is a growing body of information which confirms that Outdoor Education is beneficial to the social and physical development of children. However, little evidence is available concerning the effect Outdoor Education has on the academic goals of educational development.

In a recent survey (Appendix A) of the expectations the community has of the public school, the following were identified as the three most important;

- (a) The development of academic basic skills.
- (b) The development of effective study habits.
- (c) The development of appropriate student attitudes to formal education and learning.

People concerned with the education of children will continuously evaluate the positive results of a school programme against what they believe to be its negative effects in terms of these three goals, and public and professional support for that programme will be forthcoming only when there is reasonable assurance that progress towards these goals will not be impeded.

With a variety of positive effects of Outdoor Education already confirmed, it would seem appropriate, therefore, to examine the effects that Outdoor Education might have on student achievement of these goals.

Statement of the Problem

Basically, this study attempted to determine what effect a school programme emphasizing Outdoor Education had on the student's academic development and on his development of appropriate study habits and attitudes to formal education. Specifically, answers to the following questions were sought:

- (a) Did any significant difference result in

achievement in basic skill development in academic subject areas between the experimental and control groups?

- (b) Did any significant difference result in the development of certain study habits between the experimental and control groups?
- (c) Did any significant difference result in the development of certain attitudes to formal education between the experimental and the control groups?

Assumptions

For the purposes of this study the following assumptions were made:

- (a) The professional effectiveness of teachers of the experimental group was equivalent to that of teachers of the control group.
- (b) The only major difference between the experimental programme and the control programme was the heavy emphasis placed on Outdoor Education in the experimental programme.
- (c) The standardized evaluation instruments used, validly and reliably measured student development in each goal being considered.
- (d) Matching students by achievement in pre-tests and subsequently by personality traits, including intelligence, identified by the

Junior-Senior High School Personality Questionnaire, constituted a valid and reliable method of matching pairs for the purpose of this study.

Limitations

The following limitations were identified which have implications in the generalization of the results, or in their application to other grade levels or in other school jurisdictions.

- (a) The Outdoor Education methods which were implemented were in many cases teacher developed methods whose effectiveness had not been proven.
- (b) The effectiveness of many of the adopted Outdoor Education methods has been proven in other geographic and climatic regions and these methods may not have been appropriate in this environment.
- (c) Because of the severity of the Manitoba winter many proven Outdoor Education methods had to be omitted from the experimental programme, or included in a modified form.
- (d) Limited funds were available for the purchase of special equipment and materials and for expenses incurred for desirable community field trips and residential outdoor education experiences.

- (e) Only three of the eight teachers involved in the experimental programme had completed formal courses of study in Outdoor Education at the beginning of the experimental period.
- (f) Only Grade Seven students were the subjects of the study.

Significance of the Study

It is anticipated that this study will affect curriculum development locally and provincially in the following ways:

- (a) Documented information will be provided to teachers and administrators which will assist them in making decisions concerning the allocation of human and financial resources in developing school programmes.
- (b) Research data will be provided which will facilitate decision making concerning Outdoor Education aspects of curriculum development at the School, School Division and Department of Education levels.
- (c) The study should help satisfy a growing demand for accountability in education and will be instrumental in formulating policy concerning Outdoor Education at the local and provincial levels.

Definition of Terms

Certain terms which were used frequently throughout

the study are clarified below.

Outdoor education. The means by which teachers at every grade level use nature and out-of-school experiences to attain the goals of the school. Outdoor Education includes all learning activities which take place outside the school building, in institutions, factories, offices and stores of the community, at established and fully developed residential camps and in wilderness settings.

Academic basic skills. Those skills measured by the Canadian Tests of Basic Skills, including Vocabulary, Reading, Language, Work Study and Mathematics skills.

Study habits. These consist of the elements of Delay Avoidance, representing the student's promptness in completing academic assignments, lack of procrastination, and freedom from wasteful delay and distraction, and of Work Methods, representing the student's use of effective study procedures, efficiency in doing academic assignments, and how-to-study skills, both elements as measured by the Survey of Study Habits and Attitudes (3).

Student attitudes. These consist of the elements of Teacher Approval, representing the student's opinion of teachers and of their classroom behaviour and methods, and of Education Acceptance, representing the student's approval of educational objectives, practices and requirements, both elements as measured by the Survey of Study Habits and Attitudes (3).

CHAPTER II

REVIEW OF RELATED LITERATURE

The general purpose of this review is to summarize the views and findings of the advocates of the extended use of Outdoor Education in the academic programmes of public schools. Specifically the literature was examined for evidence of

- (a) The philosophical basis of Outdoor Education.
- (b) The psychological basis of Outdoor Education.
- (c) The historical foundations of Outdoor Education.
- (d) Empirical research on the effects of Outdoor Education methods in achieving the goals of the school identified in Chapter I.

Philosophical Basis

The philosophy underlying Outdoor Education is the need to search for the best possible educational methods or alternatives available. It is based on the premise that some things can best be taught and learned out-of-doors or outside the walls of the classroom. As Blackman stated (1:216):

In many ways schools provide an artificial and contrived set of conditions for learning. School buildings isolate youngsters from the 'world outside,' from its sounds, its beauty, its unity. And within the building, walls isolate one set of experiences from another, one group from another and one individual from another. The quite artificial conditions

for learning we create within schools are far removed many times from those conditions under which we'll carry on a life-time of learning.

Outdoor Education is intended to supplement, not replace, the classroom. Smith et al. quoted Sharp as saying (28:20-22):

That which can best be learned inside the classroom should be learned there. That which can best be learned in the out-of-doors through direct experience, dealing with native materials and life situations, should there be learned.

Vicarious learning experiences are not enough. First hand learning is an elemental way of achieving educational goals and involving the learner in the process of education (4). Freeberg and Taylor strongly support this contention when they say (11:129)

Textbook materials must be supplemented and complemented by adequate experiences so students may comprehend the written word more easily. Contact with nature and real life experiences should be an inherent part of all school curricula. There should be many opportunities for teachers and students to leave the classroom to observe, investigate, explore and seek adventure in interesting places wherever they may occur. Schools need to realize that all subject matter areas can be made more meaningful through Outdoor Education.

Outdoor Education developed from a genuine concern for the young, the learning processes and the outdoors. Justification for its inclusion in the educational programme of our schools can be found in the writings of most of the philosophers whose names are synonymous with educational

development. It developed from the efforts of many educators to achieve the objectives of our schools in the best possible way.

The goals of Outdoor Education are the goals of education itself. Those which are particularly relevant to a school Outdoor Education programme abound in the literature and include the following (28:31-2):

Educational Goals and Means in the Outdoors

Goal	Means in the Outdoors
To develop the full potential of the individual.	Through optimum exposure to and involvement with the natural environment.
To develop knowledge, skills attitudes and appreciations for the constructive and creative use of leisure time.	Through exposure to outdoor interests and instruction in outdoor sports and component skills.
To promote the development of social relations and individual responsibility.	Through group living experiences, particularly in resident outdoor education, where there are unique opportunities for student-teacher planning and participation in the camp community.
To promote the development of civic responsibility.	Through active participation and problem-solving situations in the community, the improvement of the physical environment, and the development of good human relationships through co-operative projects and activities.
To promote the development of aesthetic interests and appreciations.	Through participation in positive experiences in the natural environment which contribute to the creative expression of talents and interests.

To help the individual become more self-reliant and secure.

Through adventuresome and challenging outdoor pursuits and skills which require initiative and active participation in solving problems related to comfort, safety and survival.

To provide opportunities for the individual to strengthen his self-concept.

Through achieving success and accomplishment in activities which are meaningful to the learner.

To develop awareness, appreciation, understanding and respect for man's relationship and stewardship responsibility to the natural environment.

Through opportunities for exploration and problem solving in the outdoors.

Smith et al. (28) illustrated through examples how Outdoor Education could meet the objectives of "Self-Realization, Human Relationship, Economic Efficiency and Civic Responsibility" which are all necessary abilities and characteristics for effective social living in a democracy.

Hammerman listed the following basic tenets of education for justification of a school Outdoor Education programme (13:68)

- (a) The modern curriculum is developmental, based on real experiences that meet the needs of children and changes their behaviour patterns toward good citizenship and full individual life.
- (b) General education is aimed at a common core of learning necessary for each individual in a democratic society.
- (c) The modern school is concerned with the growth and development of the whole child in all areas of his living.

Hammerman and Hammerman later identified these basic educational needs of the child which could be served

best by Outdoor Education (14:1-6). These include:

1. The need for effective learning.
2. The need for realism in education.
3. The need for environmental literacy.
4. The need for re-creative experience.
5. The need for basic concepts.
6. The need for awareness.

On an objectives continuum, they summarized these needs as follows (14:14):

1. Discovery
2. Facts
3. Socialization
4. Concepts
5. Democratic Understanding
6. Appreciations
7. Re-creative experiences
8. Self-Realization.

Similar objectives of Outdoor Education which provide a rationale for its use, and further evidence of the potential of Outdoor Education to enhance the learning situation can be found in Mand (21).

Psychological Basis

Outdoor Education is an approach to education aimed at achieving more efficient and effective learning and consequently must be based upon the basic principles of learning. The outdoors provides a setting for learning, offering first hand real life experiences as opposed to the vicarious experiences which take place within the four walls of the classroom. These experiences fall within the cognitive, affective and psycho-motor domains of education. In fact it is felt that Outdoor Education may well make unique contributions to development of behaviours in the affective domain (30). Outdoor Education employs problem solving and

discovery methods which are particularly suited to the outdoors and which develop appreciations, skills and understandings that will supplement the indoor curriculum of the school (31, 25).

The distinguishing characteristics of Outdoor Education which relate to the methodology of learning were summarized by Smith et al. (28:42-3):

1. Direct experience
2. Discovery, exploration, adventure
3. Sensory learning
4. Activities natural to childhood and youth
5. Intense interest
6. Reality
7. Problems in context
8. Learners most active.

These characteristics may be elaborated upon in the light of what other authors and learning theorists have said.

Brown (2), for example, in his discussion of Outdoor Education as a superior way of presenting conventional academic content, was concerned with two questions. Firstly (2:1)

Is there a unique content legitimate for public schools which is not or cannot be included in the usual pattern of classroom work and therefore should be reached through Outdoor Education programmes?

and secondly (2:2):

Is Outdoor Education a medium through which a legitimate public school content may be presented more effectively, with greater clarity, understanding retention and usable knowledge than would be possible in a more traditional manner?

His conclusion was that "the greater initial expense in effort, time, and money for Outdoor Education may very well result in the most economical means of presenting some

academic work when one considers the total costs for healthy desirable and lasting education." (2:4).

The key characteristic of Outdoor Education is the direct exposure to learning experiences. It reduces vicarious classroom experiences, such as verbalism, which are all too prevalent, and instead presents content in an interesting, manageable, and challenging way (2). As a result, abstract, passive learning is replaced with the concrete, experiential activities more beneficial in every way to the developing mind (14). Furthermore learning occurs best and is facilitated if it occurs in a situation similar to that in which it is to be used (34).

Outdoor Education utilizes the methods of discovery, exploration, and adventure. It emphasizes the scientific method; curiosity, observation, hypothesis, testing, measuring new hypothesis and sustained curiosity (21). The Hall-Dennis Report on Education (24:3) elaborated on this aspect of Outdoor Education in stating:

The modern professional teacher is a person who guides the learning process. He places the pupil in the centre of the learning activity and encourages and assists him in learning how to inquire, organize and discuss, and to discover answers to problems of interest to him. The emphasis is on the process of inquiry as well as on the concepts discovered.

One of the report's recommendations was that the school should "Provide for educational tours and field trips as a regular part of the learning experience at all levels" (24:4).

In the outdoor-learning experience information is

obtained through all the senses. Freeberg and Taylor (11) stressed the importance of our senses in acquiring knowledge and how this capacity is often limited and restricted in the classroom. In addition sense perception in learning can be applied to all subject matter fields.

Sangster (26) quoting John Stevens, stressed the importance of the senses in discussing the three zones of awareness; the outside world, the inside world, and the fantasy activity. The third area, which includes all mental activity, is the only one in which we are trained. The others, which emphasize sensory awareness, are not stressed and as a result we have "ceased to sense." Outdoor Education can bring about a balance between the three zones through re-education in sensory awareness. He stated (26:8):

Outdoor Education has obvious potential, as I see it, to expose students to experiences in which they can make sensory contact with the outside environment . . . and make sensory contact with what is happening inside them. . . . I believe relearning these awareness skills ought to be a goal of any educational process, not just Outdoor Education.

The same philosophy underlies the statement of the Hall-Dennis Report (13:7) that:

We owe to children the freedom to explore the full range of their senses; to appreciate subtle differences; to be aware of beauty wherever it is found; to see, to touch, to smell, to hear, to taste, so that each in his own way will strive to find and express the meaning of man and human destiny.

Outdoor activities have an inherent appeal for

youngsters and are therefore motivating. A motivated learner, especially when learning is motivated intrinsically, learns more readily (15). Hilgard agreed that involvement in learning stimulates interest and is preferable to passive reception. Motivation is also generated since "Opportunity for fresh novel, stimulating experience is a kind of reward which is quite effective in conditioning and learning " (33:5).

The outdoors presents problems to the learner which are more easily understood when considered in their real environment. Direct experience gives reality to the educational process and effective learning occurs when the problems are studied in context. The learner must be able to sense the importance of the new learning for himself in his world (8, 25, 34).

Finally, the outdoors fully involves the learner in the learning activities. If the learner has had the experience of applying principles and discovering relationships through participation in a variety of real-world tasks, transfer of this learning to new tasks will be more effective. To be effective the tasks must challenge the learner, be neither too easy nor too hard, where success seems possible but not certain (15, 34).

As evidenced by the above, one can see the importance of direct experience and problem solving in the theories of learning and educational methods. It is apparent that thinking and doing cannot be separated and that is where the

value of Outdoor Education lies (28). Outdoor Education emphasizes this technique for gaining knowledge and skills. "If learning gives pleasure, is involving, is meaningful, if we enjoy it--it seems to stick in our heads " (20:7).

The Historical Foundations

In examining the historical foundations of Outdoor Education, it is of prime concern to detail various educational methods used to advance learning throughout history. Although not found under the relatively modern term of "Outdoor Education," this concept of learning in and from the Outdoors dates far back into history and educational literature. As Smith et al. stated (28:15):

Learning from nature has always been a part of the developmental process of man. It is not surprising in an industrialized and materialistic culture which has created the current environmental crisis, that society seeks to rediscover the link between man and the earth from which he sprang.

In primitive times man was always in contact with nature and real-life experiences. Education and learning, concerned almost entirely with problems of survival, resulted from direct experience with the environment. "The prehistoric period of man represented one facet of the outdoor education programme The emphasis on direct and real-life experience " (11:139).

With the advent of writing came the caution that the written word could not be the only means of acquiring knowledge. Those civilizations that did not pay heed to this caution remained static (11).

In Ancient Greece, Socrates used the outdoors as his classroom. Knowledge was based on experience and his methods are reflected in the Outdoor Education methods of today. His student, Plato, stressed the integrative approach to life and this also constitutes an important concept in contemporary Outdoor Education (11).

During the Reformation, the beginnings of modern educational theory were formulated in the writings of Comenius. He believed that all learning occurs through the senses, that it is important to stir the creative urge and imagination of the student, and that education must be related to life and learning and is best accomplished through direct experience (11).

Similar philosophies are found in the writings of Rousseau (9) and Pestalozzi, who felt ". . . that studying from a textbook filled the child's mind with hazy ideas and meaningless words, whereas teaching through observation and direct experience gave him clear ideas, greater knowledge and more natural experience in oral expression " (11:170).

Support for Outdoor Education can also be found in the more recent writings of educators such as Dewey, whose views on the psychology of learning are based on the necessity of reinforcing abstract learning with concrete experience (2, 14, 28). The Outdoor Education movement has emerged as the major vehicle for implementing these views.

Outdoor Education has also emerged in response to changing circumstances in our society. It can help fill

the void created by an urban society which denies opportunities for children to experience direct learning.

Society shapes education and has created certain needs; physical, emotional and spiritual which, in part, can be met through Outdoor Education. Concern for the environment, urbanization, and increased leisure time as a result of mechanization are factors which can be dealt with through Outdoor Education (28). As Mand said (21:21):

The lessons of the past, conditions of the present and prospects for the future indicate a strong need for adaptation to changing circumstances. The schools represent the vehicle for adaptability in this society and their interest in new methods of instruction, new concerns for the welfare of children and the nation have led to . . . Outdoor Education.

During this century, particularly from the 1930's onward, Outdoor Education has been one of the significant developments in education. Early efforts centered around the educational implications of summer camping which later grew into school camping programmes. Often termed "Outdoor Schools," these formed the focal point of Outdoor Education programmes in the United States during the 1940's. Also during this period the United States Government began to give both legislative and financial support to Outdoor Education programmes (29, 30).

The 1950's saw a shift in emphasis from resident outdoor schools to other forms of outdoor learning utilizing the school site, and various outdoor areas. The term "Outdoor Education" which was used frequently during the

1940's, primarily with reference to resident outdoor schools, was broadened in concept ". . . to include the teaching of skills, attitudes and appreciations necessary for satisfying outdoor pursuits" (29:920). Development also reflected a concern for the problems resulting from a shift from rural to urban living and ". . . in response to a recognition of broad social and cultural conditions and changes, a basic core of democratic goals for education and current knowledge in child development and learning theory" (29:921).

The 1960's were characterized by wide acceptance of Outdoor Education as a significant educational development. National interest in America was expressed by Titles I and III of the Elementary and Secondary Education Act which provided direction and funding for over fifty varying Outdoor Education programmes (15, 29).

Recent emphasis has been given to the environment and a number of new terms have arisen. However, Outdoor Education still lends itself to the entire curriculum and takes many different shapes from the use of the school site and other outdoor areas related to classroom activities, to resident outdoor schools, the teaching of outdoor skills and outdoor work-learn experiences (30).

Significantly, Outdoor Education has grown from within the education profession itself, developed by professional educators. As Miller wrote(22:4)

It has grown from inside the curriculum; it has developed from within the existing framework of the school programme and has been characterized by a collaborative and co-operative involvement of teachers, administrators and professors of education who best know the learning needs and interests of children and youth.

Research

Empirical research is necessary to justify the place of Outdoor Education in the school curriculum. Justification must be based on verifiable rather than intuitive statements.

In the past, research has focussed primarily upon descriptive surveys and historical studies, and it is evident that a need exists for more empirical research.

Knapp pointed out this weakness (19:117):

Justification of the value of Outdoor Education has largely centered on an emotional level. Exaggerated claims concerning student retention, understanding, appreciation and attitudinal change have been advanced with little research evidence to substantiate them.

There is available, however certain documented evidence concerned with the effects of Outdoor Education which is of particular relevance to this study.

Most early research was concerned with the values of summer camping experiences. For example, in 1948 it was shown that school objectives in certain subject-matter areas could effectively be achieved in the camp setting (29). This study involved New York City children in a three-week experimental period.

The residential camp setting was also the setting for a study of expected student gains in six specified areas (7). Funded under Title III of the Elementary and Secondary Education Act, student growth was evaluated in specific knowledge, utilization of the outdoors as a laboratory, awareness of man's dependence on nature, appreciation of nature's beauty, adaptability to community living, and understanding of natural ecological problems. Evaluation of data from a number of sources indicated that the expectations of the planners had been met and also suggested unexpected values which could contribute to improving educational programmes.

An evaluation of the effect of an outdoor camp setting on urban youth was undertaken through the use of interviews questionnaires and pre- and post test attitude and knowledge inventories. Findings showed positive results on both students' knowledge in mathematics, science and vocabulary and in the feelings of the classroom teachers that the students had experienced a social growth through their group living experiences (10).

Student reaction to a Mountain Park programme for sixth graders from Washington, D.C. was a renewed zest for learning (32).

A summer programme involving 2400 young people as a part of a youth Conservation Corps pilot programme was evaluated to determine the impact on the participants in regard to environmental education, social relations, skill

development and self-concept. Questionnaire responses were very favourable and indicated that the experiences not only contribute to the development of quality work and recreational skills but also increased their ability to live with and accept other people. Understanding and knowledge about the environment increased only slightly, although the students remained highly concerned about environmental problems (23).

Research is also available on the effects of other types of Outdoor Education programmes. A study on the effects of field trips as an aid to student educational growth showed significant changes from pretest to post-test (12).

A programme to incorporate environmental education into the curriculum of 5th grade general or slow learners concluded that improvements in student attitude had occurred (16).

Findings in studies involving teachers have also proved significant. The effects of an outdoor education programme on student teachers showed statistically significant and favourable changes in students' attitudes to conditions that existed in professional education classes. It may also have caused a favourable attitude change toward what should be a desirable condition in the elementary school. No significant effect on attitudes of students to student relationships were found (17).

The only relevant study located involving school

administrators concerned an evaluation of changes in attitudes toward the usefulness of Outdoor Education in achieving academic goals (6). School administrators and teachers of Wilhamson County, Illinois, participated in the Co-operative Outdoor Education Project, Title III, Elementary and Secondary Education Act, and positive attitude changes resulted.

Summary

This chapter has reviewed those aspects of the descriptive literature which are supportive of Outdoor Education on philosophical, psychological and historical grounds. Evaluative literature, of which there appears to be little, was also reviewed.

Both the descriptive and the evaluative literature indicated strong support for the concept of Outdoor Education as a superior method for achieving educational goals. However, it was also clear from the literature that more study of all aspects of Outdoor Education as an alternative teaching method is needed, especially in the areas where little or no empirical research has been conducted. It is intended that the investigation of the hypotheses of this study will, in a small way, help meet this need.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this investigation was to determine whether or not certain achievement results of students in an experimental Outdoor Education programme differed significantly from the results of students in a regular school programme. To do this a matched-pairs, experimental-control groups, pre-test post-test experimental design was developed. This chapter explains the experimental design and procedures and describes the evaluation instruments used.

The Experimental Design

A research design involving two groups of Grade 7 students, one from each of two schools, was utilized. All Grade 7 students from School A were identified as the experimental group and all Grade 7 students from School B were identified as the control group.

Standardized tests were administered to both groups prior to the experimental period. The Canadian Tests of Basic Skills (18) were administered to determine each student's level of achievement in academic basic skills. Secondly each student's level of development with

regard to certain study habits and certain attitudes to formal education was established through their responses to the Student Study Habits and Attitudes Questionnaire (3).

Also prior to the experimental period, each student's level of development in each of the fourteen traits included on the Junior-Senior High School Personality Questionnaire (5) was established.

Matched pairs of students were established for comparing achievement in Academic Basic Skill development as follows:

(a) The composite score achieved by the first subject in the experimental group in the C.T.B.S. pretest was compared with the same scores achieved by all subjects of the same sex in the control group. The control subjects with the same percentile as the first experimental subject, or achieving a percentile closest to the first experimental subject within a maximum difference of five percentile points, were identified.

(b) The standard scores achieved by the first experimental subject on each item of the Junior Senior High Personality Questionnaire were then compared with the same scores achieved by the control sub-group identified in (a). The first experimental subject was matched with the control subject from this identified group whose scores for each item on the H.S.P.Q. were least different. The average difference in score for each item was limited to 2.5 Stens.

(c) Where no match could be established because of this limitation the process was repeated for control subjects scoring next closest on the C.T.B.S. to the first experimental subject, to a maximum difference of 5 percentile points.

(d) Forty-four matched pairs were thus identified.

Matched pairs of students were established for comparing student development of certain study habits by applying the same processes as those described in (a) to (c) above with the substitution of Study Habits pre-test scores for those of C.T.B.S. scores. Forty-seven matched pairs were identified.

Using the same processes, but substituting Student Attitude pre-test scores, fifty-one matched pairs were established for comparing student development of certain attitudes to formal education.

Three groups of matched-pairs, one for each area of testing, were thus established.

At the end of the experimental programme (Table 1), the same standardized tests were administered and the results of the matched pairs were compared for significance of difference using the Wilcoxon Matched-Pairs Signed-Ranks test (27).

The pre-test and post-test results of all students in both the experimental and the control groups were also examined and certain conclusions were reached.

TABLE I

UNIT PLANNING

OUTDOOR EDUCATION EXPERIMENTAL PROGRAMME

Unit No.	Date	ACADEMIC SUBJECTS - UNIT TOPICS			OUTDOOR LOCATION	DURATION
1	Nov. 74	Language Arts Descriptive Communication	Mathematics Geometrical measurement	Science Erosion	Social Studies Mapping. Orienteering	La Barriere Park 1 day
2	Nov. 74	Descriptive Communication	Metric System- Temperature	Organisms and Temp. Migration	Environment and Man. River Civi- lizations	Oakhammock Marsh 1 day
3	Dec. 74	Creativity in Communications	Elementary Trigonometry, Metric System in Geometry	Forrestry. Animal Behaviour	Weather and Climate. Principles of Democracy	Camp Wannacumbac 5 days
4	Jan. 75	Narrative Communication	Metric Sys- tem-Weights and Measures	Nutrition	Trade and Commerce	Shopping Centres 1 day
5	Feb. 75	Narrative Communication	Metric Sys- tem - Speed and Distance		Primary Industry. Ethnic groups of Manitoba	Gimli 1 day
6	Feb. 75	Expository Communication	Metric Sys- tem-Estima- tion	Minerals	Cultural Heritage of Manitoba	University of Manitoba 1 day
7	Mar. 75	Expository Communication	Metric Sys- tem-Per- centages	Minerals	City Plan- ning, Archaeo- logy in History	Museum of Man and Nature 1 day

TABLE I (Continued)

Unit No.	Date	Language Arts	Mathematics	Science	Social Studies	OUTDOOR LOCATION	DURATION
8	Apr. 75	Technology in Communication	Metric System Relationships	Circuitry. Bernoulli's Principle	Location of Settlements. City Infra-structures	International Airport Reimer Express CNR Transcona Yards Manitoba Telephone System C.B.C. T.V. C.F.R.W. Winnipeg Tribune	2 days
9	May. 75	Communication in Public Life			Development of Democracy	Legislative Ass. City Hall Court of Queens Bency Court of Can. Cit.	2 days
10	June 75	Communication for Entertainment	Metric System Application	Introduction to Ecology	Map Reading. Application of Democratic Principles	Lake of the Woods Wilderness Camp	5 days

The Evaluation Instruments

The same standardized tests were used for pre-testing and post-testing.

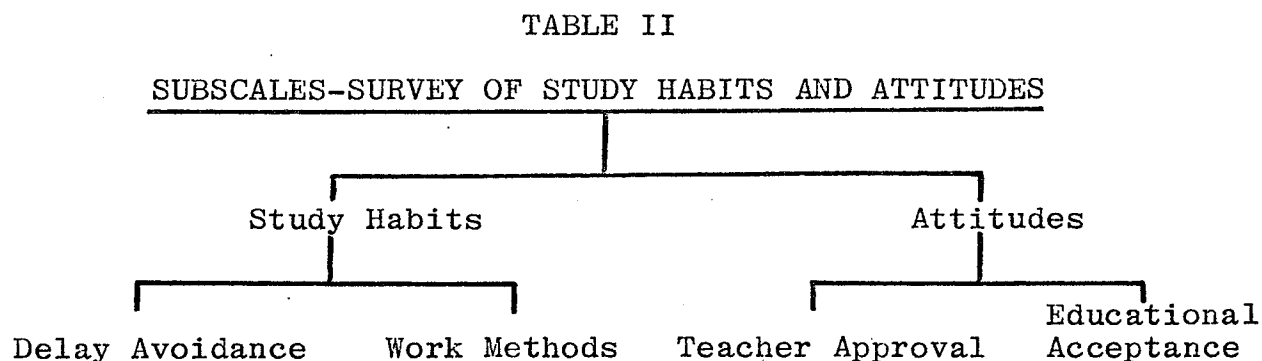
(a) Academic basic skill levels of achievement were identified through the use of the C.T.B.S., Form 1 (18). Individual skills tested with this instrument included; Vocabulary, Reading, Spelling, Capitalization, Punctuation, Usage, Maps, Graphs, References, Arithmetic Concepts and Arithmetic Problems. Each of these skills was emphasized in all lesson plans in appropriate subject areas of the experimental programme.

Each student's scores on these tests produced a composite percentile ranking which was used to calculate the percentage loss or gain in basic skills achievement at the end of the experimental period. The C.T.B.S. have been developed from the extensive work in test construction carried out at the University of Iowa for over thirty-five years. In 1966 special pilot projects in a representative sample of Canadian schools resulted in revisions which ensured acceptable levels in the validity and reliability of the tests in determining achievement levels in the academic basic skills of Canadian students.

Technical data concerning the validity and reliability of the tests are discussed at length in the Manual.

(b) The Survey of Study Habits and Attitudes (3) was designed in part to identify students whose study habits and attitudes are different from those of students who earn

high grades. The survey consists of four basic subscales as indicated in Table II.



For study habits, the composite standard scores obtained by each student on the pre-test and on the post-test were compared to determine the percentage loss or gain in scores. The process was repeated for attitudes.

This instrument has been validated in a large number of junior and senior high schools throughout the United States and a correlation coefficient of the survey with Grade Point Average of .72 was established for Grade 7 students. Also, studies have been conducted which indicate that the four subscale scores are sufficiently stable through time to justify their use in assessing the degree of change in study habits and attitudes after treatment.

Full technical details concerning validity and reliability are contained in the Manual.

(c) The Junior-Senior High School Personality Questionnaire (5) measures fourteen distinct dimensions or traits of personality which have been found by psychologists to come near to covering the total personality.

Standard scores achieved by each student on the test were used for matching each experimental subject with a control subject, after preliminary matching on the basis of pre-test scores on the C.T.B.S. or the S.S.H.A. had been completed.

Summary

In this chapter the experimental design and procedures were explained and the evaluation instruments were described. The design consisted of matching students from the experimental group with students from the control group on the bases of sex, pre-test achievement results in each of academic basic skills, study habits and student attitudes, and on personality characteristics including intelligence. An experimental programme emphasizing Outdoor Education was implemented over an eight month period and post-test results in each area being tested were statistically analyzed for significance of difference.

The same two standardized tests, the Canadian Tests of Basic Skills and the Survey of Study Habits and Attitudes were used in pre-testing and post-testing.

CHAPTER IV

RESULTS AND DISCUSSION

An examination of the raw scores on the standardized tests used indicate that the gains made by the experimental group were better than those achieved by the control group. In this chapter, these results are statistically analyzed using the Wilcoxon Matched-Pairs Signed-Ranks test, and the results are presented. Also, the significance of these results, in terms of related research, curriculum development generally, and practical implications for school administrators and teachers, is discussed.

Hypotheses

- (a) Ho: there was no difference between the scores obtained by the experimental group in the post-test of the Canadian Tests of Basic Skills and those obtained by the control group.
H1: the scores obtained by the experimental group in the post-test of the Canadian Tests of Basic Skills were better than those obtained by the control group.
- (b) Ho: there was no difference between the scores obtained by the experimental group in the post-test of the Survey of Study Habits and those obtained by the control group.

H1: the scores obtained by the experimental group in the post-test of the Survey of Study Habits were better than those obtained by the control group.

(c) Ho: there was no difference between the scores obtained by the experimental group in the post-test of the Survey of Student Attitudes and those obtained by the control group.

H1: the scores obtained by the experimental group in the post-test of the Survey of Student Attitudes were better than those obtained by the control group.

Statistical Procedures

The Wilcoxon Matched-Pairs Signed Ranks Test was chosen because the study employed two related samples and it yielded difference scores which could be ranked in order of absolute magnitude.

Significance level. Let $\alpha = .01$, $N =$ the number of pairs minus any pairs whose (d) is zero.

Sampling distribution. Under Ho, the values of z as computed from the formula

$$z = T - \frac{N(N + 1)}{4} \sqrt{\frac{N(N + 1)(2N + 1)}{24}}$$

are normally distributed with zero mean and unit variance.

Rejection regions. Since the direction of the difference is predicted the region of rejection is one-tailed. If the difference is in the predicted direction, T , the smaller of the sums of the like-signed ranks will be the sum of the ranks of the control group. The region of rejection consists of all z 's (obtained from data with such T 's) which are so extreme that the probability associated with their occurrence under H_0 is equal to or less than $\alpha = .01$.

Decisions

For academic basic skills, the hypotheses are restated as follows:

H_0 : there was no difference between the scores obtained by the experimental group in the post-test of the Canadian Tests of Basic Skills and those obtained by the control group.

H_1 : the scores obtained by the experimental group in the post-test of the Canadian Tests of Basic Skills were better than those obtained by the control group.

A difference score (d) was obtained for each pair by subtracting the percentage gain or loss in composite C.T.B.S. scores of the control subject from the percentage

gain or loss in composite C.T.B.S. scores of the experimental subject. Table III gives these values of (d) for 44 pairs and gives other information for computing the Wilcoxon Test. A minus (d) indicates that the percentage gain of loss in scores was more satisfactory for the control subject than for the experimental subject. For the data in Table III, $T = 143.5$.

$$\begin{aligned}
 z &= T - \frac{N(N+1)}{4} \\
 &\quad \sqrt{\frac{N(N+1)(2N+1)}{24}} \\
 &= 143.5 - \frac{43(43+1)}{4} \\
 &\quad \sqrt{\frac{43(43+1)(86+1)}{24}} \\
 &= \frac{143.5 - 473}{4} \\
 &\quad \sqrt{6858.5} \\
 &= \frac{-329.5}{82.82} \\
 &= -3.91
 \end{aligned}$$

TABLE III

PERCENTAGE GAIN OR LOSS IN C.T.B.S.

SCORES FOR EXPERIMENTAL AND CONTROL GROUPS

Pair	Percentage Gain or Loss in C.T.B.S. Scores		d	Rank of d	Rank With Less Frequent Sign
	Experimental Group	Control Group			
1	-16	-6	-10	12	12
2	+ 1	-13	14	16	
3	-20	-29	9	9	
4	-22	-15	- 7	7	7
5	-14	-18	4	3	
6	-10	+11	-21	25.5	25.5
7	-15	-34	19	20	
8	-26	-57	31	29	
9	+ 9	-34	43	35	
10	- 2	- 5	3	2	
11	- 5	-23	18	19	
12	-10	-30	20	23	
13	- 4	-13	9	9	
14	-11	-16	5	5	
15	- 4	- 4	0		
16	- 9	-30	21	25.5	
17	-14	-45	31	28.5	
18	-21	-30	9	9	
19	- 8.3	- 6.3	- 2	1	1
20	-23.3	- 1.1	-22.2	27	27
21	-24.1	-41.0	16.9	18	
22	-24.1	-18.5	- 5.6	6	6
23	-20.3	- 8.9	-11.4	15	15
24	+ 5.5	- 5.7	11.2	14	
25	-10.0	-30.0	20.0	23	
26	+ 7.5	-64.2	71.7	41	
27	-23.3	-28.1	4.8	4	
28	-18.3	-38.3	20.0	23	
29	-19.3	-52.6	33.3	30.5	
30	5.7	-40.4	46.1	37	
31	-77.4	-67.9	- 9.5	11	11
32	+30.2	-83.0	113.2	42	
33	-24.5	-34.8	10.3	13	
34	+21.7	-47.8	69.5	40	
35	- 6.5	-26.1	19.6	21	
36	-23.1	-60.5	37.4	34	
37	-47.2	-82.1	34.9	33	
38	-34.5	-79.2	44.7	36	
39	-44.4	-61.1	16.7	17	
40	-81.3	-12.5	-68.8	39	39
41	-12.5	-58.3	45.8	38	
42	-16.7	-50.0	33.3	30.5	
43	+40.0	-80.0	120.0	43	
44	-33.3	-67.7	33.4	32	

T = 143.5

Table A of Siegal (27) shows that a z of -3.9 has a one-tailed probability associated with its occurrence under H_0 of $p = .00005$. Inasmuch as this p is less than $\alpha = .01$ and thus the value of z is in the region of rejection, the decision is to reject H_0 in favour of H_1 .

For study habits, the hypotheses are restated as follows:

H_0 : there was no difference between the scores obtained by the experimental group in the post-test of the Survey of Study Habits and those obtained by the control group.

H_1 : the scores obtained by the experimental group in the post-test of the Survey of Study Habits were better than those obtained by the control group.

A difference score (d) was obtained for each pair by subtracting the percentage gain or loss on scores obtained in the Survey of Study Habits by the control subject from the percentage gain or loss in scores obtained by the experimental subject. Table IV gives these values of (d) for 47 pairs and gives other information for computing the Wilcoxon test. A minus (d) indicates that the percentage gain or loss in scores was more satisfactory for the control subject than for the experimental subject.

For the data in Table IV, $T = 488.5$

$$z = \frac{T - \frac{N(N+1)}{4}}{\sqrt{\frac{N(N+1)(2N+1)}{24}}}$$

$$z = \frac{488.5 - \frac{45(45+1)}{4}}{\sqrt{\frac{45(45+1)(90+1)}{24}}}$$

$$z = \frac{488.5 - 517.5}{\sqrt{7848.75}}$$

$$z = \frac{-29.0}{88.59} = -.3274$$

Table A of Siegel (27) shows that a z of $-.3274$ has a one tailed probability associated with its occurrence under H_0 of $p = .37$.

Inasmuch as this p is greater than $\alpha = .01$ and thus the value of z is not in the region of rejection, the decision is to accept H_0 .

For student attitudes, the hypotheses are restated as follows:

H_0 : there was no difference between the scores obtained by the experimental group in the post-test of the Survey of Student Attitudes and those obtained by the control group.

H_1 : the scores obtained by the experimental group in the post-test of the Survey of Student Attitudes were better than those obtained by the control group.

A difference score (d) was obtained for each pair by subtracting the percentage gain or loss in scores

TABLE IV

PERCENTAGE GAIN OR LOSS IN STUDY HABITS

SCORES FOR EXPERIMENTAL AND CONTROL GROUPS

Pair	Percentage Gain or Loss in Study Habits Scores		d	Rank of d	Rank With Less Frequent Sign
	Experimental Group	Control Group			
1	+ 4.2	0	+ 4.2	2	
2	-27.7	-55.5	+27.8	21	
3	-11.8				
4	- 6.3	-31.3	+25.0	19	
5	-26.7	+20.0	-46.7	28	28
6	+ 7.7	-95.4	+103.1	37	
7	-16.7	-16.7	0		
8	-45.5	+20.0	-65.5	32	32
9	-30.0	-20.0	-10	8	8
10	-33.3	-40.0	+ 6.7	4	
11	+25.0	+12.5	+12.5	9.5	
12	+12.5	+25.0	-12.5	9.5	9.5
13	-42.9	0	-42.9	27	27
14	+14.3	-50.0	+64.3	31	
15	+50.0	-50.0	+100.0	36	
16	+100.0	-50.0	+150.0	39.5	
17	-16.7	-33.3	+16.6	14.0	
18	-88.0	-33.3	-54.7	29	29
19	-80.0	-88.0	+ 8.0	6	
20	+25.0	-50.0	+75	35	
21	-85.0	+75.0	-160.0	41	41
22	0	-25.0	+25.0	19	
23	-93.3	-80.0	-13.3	-12	12
24	+250.0	+250.0	0		
25	+150.0	0	+150.0	39.5	
26	0	-40.0	+40.0	25.5	
27	+500.0	-80.0	+580.0	45	
28	-66.7	0	-66.7	-33.5	33.5
29	0	+566.7	-566.7	-44	44
30	+400.0	+566.7	-166.7	-42	42
31	-2.1	-5.1	+ 3.0	1	
32	-10.5	- 5.6	- 4.9	3	3
33	-23.5	-31.3	+ 7.8	5	
34	+ 6.7	+26.7	-20.0	15.5	15.5
35	-40.0	-53.3	+13.3	12	
36	-91.4	-71.4	-20.0	15.5	15.5
37	-46.1	+38.5	- 9.6	7	7
38	-10.0	+30.0	-40.0	25.5	25.5
39	+66.7	+33.3	+33.4	24	
40	-71.4	-50.0	-21.4	17	17
41	+33.3	0	+33.3	22.5	
42	+14.3	-96.7	+111.1	38	
43	0	+33.3	-33.3	22.5	22.5
44	-20.0	-33.3	+13.3	12	
45	0	-25.0	+25.0	19	
46	+33.3	+100.0	-66.7	33.5	33.5
47	+100.0	+600.0	-500.0	43	43

obtained in the Survey of Student Attitudes by the control subject from the percentage gain or loss in scores obtained by the experimental subject. Table V gives these values of (d) for fifty-one pairs and gives other information for computing the Wilcoxon Test. A minus (d) indicates that the percentage gain or loss in scores was more satisfactory for the control subject than for the experimental subject.

For the data in Table V, $T = 376.5$

$$z = \frac{T - N(N + 1)}{4} \div \sqrt{\frac{N(N + 1)(2N + 1)}{24}}$$

$$z = \frac{376.5 - \frac{49(49 + 1)}{4}}{\sqrt{\frac{49(49 + 1)(98 + 1)}{24}}}$$

$$z = \frac{376.5 - 612.5}{\sqrt{10106.25}}$$

$$z = \frac{-236}{100.53} = -2.35$$

Table A of Siegel (27) shows that a z of -2.35 has a one-tailed probability associated with its occurrence under H_0 of $p = .0094$.

Inasmuch as this p is less than $\alpha = .01$ and thus the value of z is in the region of rejection, the decision is to reject H_0 in favour of H_1 .

Discussion

In two of the areas tested, academic basic skills and student attitudes, the experimental group achieved

TABLE V
 PERCENTAGE GAIN OR LOSS IN STUDENT ATTITUDE
 SCORES FOR EXPERIMENTAL AND CONTROL GROUPS

Pair	Percentage Gain or Loss in Student Attitude Scores		d	Rank of d	Rank With Less Frequent Sign
	Experimental Group	Control Group			
1	+ 2.1	-10.5	+12.6	5	
2	-61.1	-33.3	-27.8	17	17
3	- 5.9	-18.8	+12.9	6	
4	+21.4	+ 6.7	+14.7	7	
5	-75.0	-58.3	-16.7	8.5	8.5
6	+20.0	-40.0	+60.0	26.5	
7	-11.1	-33.3	+22.2	14	
8	+11.1	+66.7	-55.6	23	23
9	-55.6	-93.3	+37.7	18	
10	+50.0	+37.5	+12.5	3.5	
11	-25.0	-37.5	+12.5	3.5	
12	+50.0	+25.0	+25.0	15.5	
13	+90.0	-77.8	+167.8	42	
14	-30.0	-11.1	-18.9	11	11
15	+80.0	0	+80.0	35	
16	+14.3	-28.6	+42.9	20	
17	+20.0	+40.0	-20.0	12	12
18	0	-25.0	+25.0	15.5	
19	-75.0	-85.0	+10.0	2	
20	+66.7	-33.3	+100.0	37.5	
21	-33.3	-93.3	+60.0	26.5	
22	+100.0	0	+100.0	37.5	
23	-70.0	+50.0	-120.0	40.5	40.5
24	-75.0	+100.0	-175.0	43	43
25	+25.0	-80.0	+105.0	39	
26	-40.0	+100.0	-140.0	49	49
27	+500.0	+100.0	+400.0	45	
28	+733.3	+300.0	+433.3	46	
29	+900.0	+200.0	+700.0	48	
30	- 5.9	- 5.9	0		
31	-29.4	-47.1	+17.7	10	
32	+21.3	+12.5	+ 8.8	1	
33	-11.8	-87.5	+75.7	34	
34	-29.4	-87.5	+58.1	24	
35	- 7.7	-53.8	+46.1	21	
36	-23.1	+36.4	-59.5	25	25
37	- 9.1	+60.0	-69.1	30	30
38	- 9.1	-30.0	+20.9	13	
39	+30.0	-55.6	+85.6	36	
40	-37.5	+37.5	-75.0	33	33

TABLE V (Continued)

Pair	Percentage Gain or Loss in Student Attitude Scores		d	Rank of d	Rank With Less Frequent Sign
	Experimental Group	Control Group			
41	+42.9	+85.7	-42.8	19	19
42	-14.3	-97.1	+72.8	31	
43	-33.3	-33.3	0		
44	+140.0	+20.0	+120.0	40.5	
45	-25.0	-75.0	+50.0	22	
46	+75.0	+140.0	-65.0	28	28
47	+33.3	-40.0	+73.3	32	
48	+33.3	+100.0	-66.7	-29	29
49	+500.0	+166.7	+333.3	44	
50	+33.3	+50.0	-16.7	8.5	8.5
51	+500.0	-50.0	+550.0	47	

$$T = 376.5$$

better results than the control group and at a very high level of significance. In the third area, study habits, the results obtained by the experimental group were also superior, and although the required level of significance for rejection of the null hypothesis was not obtained, it is important to note that the chances of these results occurring by chance were less than four in one-hundred.

These results are compatible with the results of the limited research that has been conducted in related areas, and which was discussed in Chapter II.

In terms of curriculum development, it can be tentatively concluded that the experimental programme had a positive effect on student achievement in the areas tested, and that Outdoor Education is a valuable alternative teaching method for public schools.

The results provide teachers and school administrators with evidence that Outdoor Education should be included as a major component in the school programme. However, it is likely that the results may not be solely attributable to Outdoor Education, but rather, that uncontrolled variables, such as teacher competency, had a significant but undetermined effect, and this must be considered in assessing the relative merits of such programmes.

Also, curriculum developers must take into account the fact that the results were produced by an experimental programme, which, by definition, was affected by many unusual factors. For example, without the special attention

that had to be given to a public relations programme, to financing and to the provision of planning time for teachers, this programme would not have been developed and implemented with the same high level of success.

One of the major problems experienced in developing and implementing the experimental programme was that of negative public reaction. While the study will generally help satisfy the growing public demand for accountability in schools, the results obtained by the experimental group will do much to allay public suspicion of this kind of programme and will surely secure increased support for the kind of Outdoor Education methods included in it.

Financing also created major difficulties with very little money coming from official school sources (Appendix B). The results of this study will hopefully do much to convince School Trustees and Department of Education officials that tax-dollars are well spent in Outdoor Education and that school budgets should be increased to permit the inclusion of Outdoor Education in the school programme without extra cost to the student.

The successful development of the experimental programme and therefore, to a large extent, the consequent results, were due to the many extra hours of work spent in teacher planning and professional development sessions. The results should help convince school administrators that the expense of providing extra planning and professional development time for teachers involved in the development of Out-

door Education programmes is fully justified.

CHAPTER V

SUMMARY AND CONCLUSIONS

In this chapter, the purposes, methods and findings of the study are summarized, certain conclusions are described and related topics for further study are recommended.

Summary

The purpose of this study was to produce evidence relating to the effectiveness of Outdoor Education on the attainment of certain educational goals in a public school, specifically, on student development of academic basic skills, and of desirable study habits and attitudes. Its main significance was anticipated to be the provision of documented information which would assist in curriculum development, and in satisfying a growing public demand for accountability with regard to innovative school programmes.

The descriptive literature was reviewed for evidence of the philosophical, psychological and historical foundations for Outdoor Education, and this, together with the review of related research, produced convincing support for its inclusion in school programmes. The review also manifested a clear need for further study of the effectiveness of Outdoor Education in achieving certain educational goals.

An experimental school programme, characterized by a heavy emphasis on Outdoor Education, was developed and implemented during an eight month period of the school year, and student development of basic skills, as measured by the Canadian Tests of Basic Skills (18), and study habits and attitudes, as measured by the Survey of Study Habits and Attitudes (3), was evaluated. Each student's development in each area was compared with the development in these areas of a matched student from a controlled school programme, and the results were statistically analyzed.

The analysis provided evidence that the experimental programme had a positive effect on student achievement in the areas tested. In academic basic skills and in student attitudes, the experimental group achieved scores which were superior to their counterparts in the control group and the results were statistically significant at the $p = .00005$ and $p = .0094$ levels, respectively. In the third area tested, study habits, the experimental group again achieved superior scores, which although not acceptable at the stated level of significance of $p = .01$, were nevertheless highly significant with $p = .37$.

The results are compatible with results of research already conducted in related areas, and they have significance for both educators and the public in that they provide evidence for inclusion of Outdoor Education in the regular school programme, and justify the expenditure of limited human and financial resources for the development of such programmes.

Conclusions

The statistical analysis provides evidence that the experimental programme had positive effects on student achievement in the three educational goals investigated. This leads to the conclusion that an Outdoor Education programme of the kind outlined in Table I would benefit the school in the attainment of its goals, and thus is a viable alternative teaching method. It is therefore necessary, for educational decision makers to provide adequate opportunities for curriculum developers to increase the emphasis placed on the use of Outdoor Education in schools by providing them with sufficient funds, and by providing planning time and other personal incentives for participating teachers.

Recommendations for Further Study

Although this study produced convincing evidence of the general desirability, if not necessity, of including Outdoor Education in school programmes, further enquiry is necessary into the direct effects of Outdoor Education on the attainment of the goals of specific subject areas at each level of student development. Also, as an extension of this study, it would be highly profitable to determine the direct effect of Outdoor Education on children who have been identified as slow learners or underachievers, or on children with specific learning disabilities.

With the current growth of parental involvement in

school decision-making, it would seem appropriate to conduct a survey of parents with regard to their subjective evaluation of the effectiveness and validity of Outdoor Education in public schools. A similar survey of teachers and students would provide further valuable feedback for curriculum developers.

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APPENDICES

APPENDIX A

SCHOOL GROUP RANKING OF EDUCATIONAL GOALS

INDIVIDUAL GOAL RATING SHEET

Agenda Item 5 (a) - Indicate the importance you attach to each of the goals listed below by awarding the goal 0 to 5 points. The total of the points awarded must be 45.

For an explanation of each goal, please refer to the hand-out "Educational Goals" given out at the last meeting.

Please try to complete this exercise before the meeting next Monday.

Goals	School Group Ranking
Learn how to be a good citizen	<u>7</u>
Learn how to reflect and get along with other people who think, dress and act differently	<u>10</u>
Learn about and try to understand the changes that are taking place in the world	<u>9</u>
Develop skills in reading, writing, speaking and listening	<u>2</u>
Understanding and practice democratic ideas and ideals	<u>11</u>
Learn how to examine and use information	<u>5</u>
Understand and practice the skills of family living	<u>16</u>
Learn to respect and get along with people with whom we work and live	<u>6</u>
Develop skills to enter a specific field of work	<u>13</u>
Learn how to be a good manager of money, property and resources	<u>17</u>

<u>Goals</u>	<u>School Group Ranking</u>
Develop a desire for learning now and in the future	<u>1</u>
Learn how to use leisure time	<u>13</u>
Practice and understand the ideas of health and safety	<u>11</u>
Appreciate culture and beauty in the world	<u>15</u>
Gain information needed to make job selections	<u>18</u>
Develop pride in work and a feeling of self-worth	<u>2</u>
Develop good character and self-respect	<u>4</u>
Gain a general education	<u>7</u>

APPENDIX B

STATEMENT OF REVENUE AND EXPENDITURE

OUTDOOR EDUCATION EXPERIMENTAL PROGRAMME

REVENUE		EXPENDITURE	
SOURCE	AMOUNT	SUBJECT	AMOUNT
Department of Education	2600.00	Professional Development	1200.00
Assiniboine South School Div.	500.00	Special Equipment	500.00
Assiniboine South Teachers' Association	1250.00	Travel	2280.00
Laidlaw School Committee	500.00	Residential Programme	1959.00
Laidlaw School	750.00	Wilderness Programme	1750.00
Student Council Fund Raising	250.00	Consultant Services	250.00
Student Contribution	2150.00	Miscellaneous	61.00
TOTAL	8000.00	TOTAL	8000.00