The Effects of an Outward Bound Experience on the Self-Concept and Attitude toward School of Adolescent Males.

by

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A Thesis submitted in conformity with the
requirements for the Degree of
Master of Arts,
Educational Psychology
McGill University
1982

ABSTRACT

This study was designed to determine the effects of an Outward Bound experience (Project Challenge), on the self-concept and attitude toward school of a group of male adolescents. The findings of this study would determine whether the elements of the Outward Bound program as they were organized in a series of weekend field trips could produce significant changes in the self-concept and school attitude of the participants. From this research, suggestions could be made regarding Outward Bound programs as they relate to self-concept and school attitude. Eighty-four male Grade 9 students, 45 experimental and 39 control, were subjects in the experiment. The control group was given a placebo treatment which involved vicarious outdoor education activities and the experimental group was taken out on several weekend trips over a six-month period. The Tennessee Self-Concept Scale and the High School Personality Questionnaire were administered to both groups one week before the first experience and one week after the last experience. A two-way analysis of variance with a mixed repeated measure on one factor was used to test the trend of subject responses within groups over the treatment period. A multivariate analysis of variance was used to interpret the overall effects of all the categories of both tests. Male adolescents experiencing an Outward Bound program during weekends were found to show an overall improvement in self-concept and in their attitude toward school.

RESUME

On a conçu cette étude pour mesurer les effects de sorties de plein air sur la connaissance de soi et l'attitude envers l'école d'un groupe d'adolescents. Les résultats servaient à même d'évaluer si les élements de ce programme Outward Bound (Project Challenge), tels qu'organisé dans une serie de randonnées en fin de semain pourraient changer de manière significative la connaissance de soi et l'attitude enver l'école des participants. A partir de cette recherche on pourrait formuler des suggestions. On a choisi 84 étudiants de 9e année dont 45 furent soumis à l'épreuve alors que 39 appartenaient au groupe de contrôl. On a donné à ce groupe de contrôl un placebo qui consistaint à vivre des activitiés éducatives de plein air, tandis que le groupe expérimental prenait part à plusieurs sorties de fin de semaine pendant une période de six mois. Le Tennessee Self-Concept Scale et le High School Personality Questionnaire furent remplis par les deux groupes en deux sessions, une semaine avant la première expérience et une semaine après la dernière expérience. Une analyse de variance en deux directions se présenta avec une mesure répétée sur un facteur. Ce dessein fut utilisé pour mesurer les résultats des deux groupes au cours de la période de l'expérience. On analysa toutes les variations pour interpréter l'effet global de tous les éléments dans deux tests. Des adolescents qui ont participé à des sorties de plein air pendant le fin de semaine on manifesté un amélioration sensible dans leur connaissance de soi et dans l'idée qu'ils se font de l'école.

ACKNOWLEDGEMENTS

The writing of this thesis is the result of a team effort. I would like to express my gratitude to Dr. J. Donald, my advisor, whose assistance was invaluable in her determination to help make this a masterpiece of research. Special thanks go to Dr. Rapagna and Dr. Shore for their assistance with the statistical analysis of the data. I also extend my thanks to the students of LaSalle High School of the Protestant School Board of Greater Montreal for participating in Project Challenge. Many thanks to Mr. T. Booth and Mr. M. Maclear of LaSalle High School for their support and understanding.

I dearly thank my wife, Rona, whose limitless patience, support and typing skill has made possible the completion of this thesis. And finally, to my son, Jonathan, and daughter, Samantha, whose endurance and incredible patience have greatly helped me through this research, I thank you.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

Historically, learning has been based on a direct interaction between humans and nature. Primitive groups, in their search for food, clothing, shelter and safety, developed a variety of survival techniques which involved a constant interplay between them and their physical and social environment. The challenge of nature and its elements, and the importance placed on survival training in the wilderness, particularly its importance in the building of strong character and personal pride was supported by ancient and early European cultures (Sharp, 1947).

The roots of today's wilderness programs, such as Outward Bound, are embedded in these original survival strategies and in the philosophy of outdoor education. Wilderness survival studies focus on the effects programs such as Outward Bound have on self-development, self-image and self-esteem (Tapply, 1977). The primary objectives of Outward Bound and similar types of wilderness programs are to produce a change in self-concept; to develop communication and human relation skills; and to motivate youth to learning (Rhudy, 1970).

The intent of this study is to determine whether the elements of the Outward Bound program, as they are organized in a series of weekend field trips, can produce significant changes in the self-concept of its participants and in their attitudes toward school.

The Philosophy of Outdoor Education

The philosophy of outdoor education is rooted in Renaissance theories of education. In part as a reaction to the textbook knowledge of Medieval education, and in response to a growing movement for a more practical and humanistic methodology of education, there developed in the 18th Century the notions of naturalism and humanism. Basic to these theories of education was the importance of interaction with the environment. During this period, naturalism became the focal point of eudcational thought and discussion. Jean-Jacques Rousseau was the prime mover of Outdoor Education and the foremost exponent of naturalism. He advocated life and living in harmony with the environment. Rousseau believed that a child's education must be tempered with physical activity and that nature offered the best tools for such teaching. The goal of education was to introduce one to the environment and build there with the result of the "whole" person (Rousseau, 1968).

The theory of naturalism was based on nature as the cornerstone for human completeness: only through first-hand experience with our senses could learning take place (Pestalozzi, 1951; Rousseau, 1968). Combined with this theory was stressed the importance of self-activity and individual freedom to express oneself (Froebel, 1904). Drawing from ancient philosophical theory, the philosopher educators of this period expounded on the necessity of understanding human interaction with the environment for survival.

The seeds for a humanistic and pragmatic philosophy of education were now sown. The theme of this New Education Movement was that education must serve individual needs and abilities and that basic to human development is the surrounding social and physical world.

During the latter part of the 19th Century several experimental schools offered, as part of their curriculum, individual and group learning experiences in the outdoors. These schools were advertised as places for building character, self-discipline, and developing a sense of challenge (Templin and Baldwin, 1976).

Bruce C. Bennet, in The Making of Round Hill School. writes:

> (Students) walked twelve to sixteen miles every Saturday afternoon. . . . all the boys went on annual trips by horse and wagon to see places and people of interest. Other activities included geological expeditions, fishing trips and the boys built their own village (Crony Village). . . . (National Association, 1965, p.60)

The goals of the wilderness survival training programs of the ancient Greek and Roman cultures were echoed in these experimental schools. This back-to-nature movement was exemplified in programs like the County Boarding Schools and l'Ecole des Roches for Boys in Europe, and scouting organizations in England, the United States, and Canada, and elsewhere in the world.

These programs emphasized the hardy life, self-discipline,

physical activity as well as mastery of such skills as knot-tying, fire lighting, map and compass reading. Outdoor education was now firmly established in the Western World as an educational approach that offered its students learning experiences from the interplay between the individual and the social and physical environment.

The influence in our educational thought toward the importance and value of outdoor experiences is due directly to the theoretical views of those early philosopher-educators who saw as essential to any learning the need to respect the individual's native ability and offer learning opportunities that could be used in a practical way. They have enabled us to construct the basic tenets of today's philosophy of out-door education, and in particular of Outward Bound. Their ideas have impelled many of our educators to become aware of the outdoors as a medium through which to teach, thereby adding relevancy and first-hand experience to further the child's learning.

Historical Development of Outward Bound

One of the most significant names to influence the direc-tion of outdoor education was that of Kurt Hahn (Rohrs and Tuns-tall-Behrens, 1970). In 1920 he founded Salem, an experimental co-educational boarding school in Germany. Students from around the globe were attracted to this new educational venture, including Philip Mountbatten, who was later to become patron of the Outward Bound Schools around the world.

Hahn's aim was to train young people to have moral independence, an ability to choose between "right and wrong," and improved physical health. This theme persists throughout his educational thought and is developed in various ways in the programs he started, most notably Outward Bound (Rohrs and Tunstall-Behrens, 1970).

In 1934, Hahn opened his second school--Gordonstown at Morayshire in Scotland--and it was here that the Outward Bound philosophy began to spread and prosper. Once Gordonstown was established in the British educational structure, Hahn developed a syllabus of activities, which, when completed by his students, would lead to an award called the Moray Badge.

During the Second World War, the British Admiralty began to notice that certain types of seamen were better able than others to survive exposure after their ships had been torpedoed. The older, more experienced veterans who had been trained on sail were more able to cope with the challenge of survival than the younger sailors.

In 1940 Gordonstown moved to Wales where Hahn met James Hagan, who was to become Warden of the first Outward Bound School in 1941 at Aberdovey. Hahn and Hagan set up the first Outward Bound School to prepare young seamen to survive the rigors of being adrift on the Atlantic.

After the war it was evident to many that the British educational system was not preparing youth to cope with the post-war society. It was in these circumstances that the basis of support for making Outward Bound a more permanent

part of the educational system was born. Although the original concept of Outward Bound was to train young seamen to better survive, industrial firms were also sending their young apprentices to these schools in order to foster ambition and responsibility in youth to be better workers in the industrial system of Britain.

Hahn advocated adventure education as a training vehicle through which youth could mature. His own view of the problems of youth which Outward Bound sought to serve were not unique to Britain, and represented as good a statement of North American youth. In 1950, Josh Miner, a teacher at Phillips Academy in Andover, Massachusetts, was given a leave of absence to work under Hahn at Gordonstown. However, it was not until 1961 that the first Outward Bound school was to be established in Colorado. The time had to be right, and in the late 1950's, the social climate was such that more and more young people were questioning the values of the technological age (Rohrs and Tunstall-Behrens, 1970).

Charles Froelicher's comments on the social conditions of the early 1960's describe the timeliness of establishing an Outward Bound program in the United States:

> Without self-discovery, a person may still have self-confidence, but it is a self-confidence built on ignorance and it melts in the face of heavy burdens. Self-discovery is the end product of a great challenge

> mastered, when the mind commands the body to do the seemingly impossible, when strength and courage are summoned to extraordinary limits for the sake of something outside the self . . . a principle, an onerous task, another human life. This kind of self-discovery is the effective antidote for the indifference and insensitivity we have bred into modern youth. (Templin & Baldwin, 1976, p. 20)

It was a time of social revolution in America: J.F. Kennedy's plea for service embodied in the Peace Corps, Lyndon Johnson's Great Society spurred the Black movement and civil rights and liberties, the Vietnam War, increased drug use by youth, the polluted environment and conservation programs, the Women's Liberation Movement--all these factors had the common purpose of creating a humanistic movement whose goals and philosophy would be earmarked for the theme of Outward Bound.

Daniel Meyer, head of the North Carolina Outward Bound School, sums up the philosophy of the movement when he describes the role of his school:

> By using nature and an increasingly difficult series of challenges to confront the individual with unknown stress situations, we seek to heighten each person's sense of self-confidence, compassion for others, responsibility and service for others, and respect and dignity for mankind. (Gomolak, 1973, p. 46)

Outward Bound, throughout the early 1970's represented

adventure education. Outward Bound and adventure education were synonymous (Emerson and Golins, 1975).

After 20 years of operation in North America, Outward Bound has evolved into one of the leading examples of experiential education, a process by which people are placed in situations that enable them to learn from their experiences. This process is characterized by setting up problem-solving tasks within a predetermined physical and social environment. In performing these tasks individuals and groups are confronted with stress-inducing dilemmas. It has been observed that participants change their view of self and their perception of others as a result of group interaction, decision-making and resolving of stressful situations (Emerson and Golins, 1975).

Purpose of the Study

The purpose of this study is three-fold:

1. to identify and describe the component variables of an Outward Bound program;

2. to survey the literature related to survival experiences and group interaction and their effects on self-concept in a wilderness setting such as Outward Bound provides;

3. to empirically investigate the effects of an Outward Bound experience on school attitude and self-concept.

EXPERIMENTAL BACKGROUND

The Outward Bound Experience

Traditionally, the Outward Bound experience is a continuous four-week or 26-day residential program. Equipment and activities vary from school to school, but the experiences and challenges are the same. Physical conditioning in the early days merges with introduction to the basic skills needed to complete the course. There is instruction in safety and first aid, equipment use, search and rescue techniques, food planning and cooking, map and compass skills, route finding, and environmental awareness. These skills and others are applied in progressively more challenging situations during the course.

There are four basic components in an Outward Bound program: (a) environmental contrast, (b) group interaction, (c) problem-solving tasks, and (d) stress situations (Hahn, 1973).

(a) Environmental contrast. Outward Bound prescribes a physical environment that is alien to the participant. The outdoors presents a stimulating, at times dangerous, and yet aesthetic set of situations that is in sharp contrast to the student's experiential background. The tasks required to be performed in the outdoors are related to the natural environment. The tasks are straightforward and the consequences are immediate. Meaningful real-life situations that pose a certain degree of danger encourage constructive and respon-

sible action.

(b) Group interaction. The social environment of an Outward Bound experience prescribes the formation of a 10-member group or "primary group." Within this social environment personal interactions are translated into group objectives. The "ten-group" is large enough to accommodate the individual differences and small enough to effect the resolution of conflicts. This exchange of old and newly acquired skills in an intimate social environment provides for meaningful social interaction.

(c) Problem-solving tasks. The problem of education, in the opinion of Dewey (1963) is to establish conditions that arouse curiosity, strengthen initiative, and set up desires and purposes that are sufficiently intense to carry a person over dead places in the future. Problem-solving tasks in Outward Bound are prescribed as educational experiences. Concrete problems are introduced on an incremental basis, i.e., in terms of their complexity and consequence. Problem situations are manageable and therefore offer a sense of accomplishment and self-esteem to the participant. These tasks form meaningful ties with real consequences and appear to motivate the learner to increase his concentration and achieve mastery of problem situations.

> Unless there is some meaningful unity in what we are doing and some way of telling how we are doing, we are not likely to strive to excell ourselves.

(Bruner, 1966, p. 119).

Outward Bound problems are holistic, i.e., they require for their solution a complement of an individual's mental, emotional, and physical resources.

(d) Stress situations. An Outward Bound experience places a person in an unfamiliar physical and social environment with a host of new and unavoidable tasks. To master these tasks the participants are observed to experience some sense of anxiety and stress. In order for the subject to overcome this experience of dissonance he must proceed to discover means of solving and mastering the challenging task(s). The characteristic nature of the problems encountered in Outward Bound represents a supportive environmental network for resolving stress-anxiety through mastery. "Outward Bound represents an anxiety resolution model consisting of specific objects, events and conditions that promote resolution through mastery of problems posed" (Walsh and Golins, 1976, p. 10).

Environmental contrast, group interaction, problem-solving and stress situations are designed to be an on-going process to strengthen the character of its participants. As was felt by Kurt Hahn almost 40 years earlier (Rohrs & Tunstall-Behrens, 1970), today Outward Bound attempts to teach the value of responsibility and the importance of concrete accomplishments. Outward Bound utilizes the demands and rewards of the environment to develop personal strengths and improve interactions with others.

Adolescent Development and Self-Concept

Psychological research in behavior and motivation has resulted in the formulation of two constructs of adolescent development. Classical theory views this period as filled with internal stress and emotional instability (Freud, 1937; Greenacre, 1970; Myerson, 1975). Several studies have shown that adolescence is no more representative of emotional and psychological instability than any other period in life (Bandura, 1972; Offer, 1967; Rutter et al, 1976; Westley and Elkin, 1957).

In this study, adolescence (13 to 15 years old) is defined as a period of "identity formation," a time for choosing and defining one's place in the future. Along with the process of defining one's self, is the need to devote oneself to something meaningful (Erikson, 1965).

The development of self-concept in adolescence has been a source of numerous studies (Kaplan, 1971; McCandless, 1967, 1970; Wylie, 1979). These studies tend to characterize adolescents with positive self-concepts as better adjusted, more able to deal with stress-reduction, more effective in group interactions, and exhibiting positive attitudes towards school.

James Coleman (1971) suggests that the child's environment has become impoverished in opportunities for responsible and productive activities that develop the individual. Research suggests that a positive change in the self-concept

of adolescents results from a stressful physical and social environment as is experienced in Outward Bound (Mattai, 1973; Nye, 1975).

Psychodynamic theories of self-concept developed by Freudians and neo-psychoanalytic tradition viewed the ego as the executive and regulator of the total personality. Psychoanalytic theory interpreted unconscious self-evaluations as important factors when describing a person's self-perception. Such introspectionist notions as "self-evaluation" and "self-observation" resulted in considerable criticism, due mainly to the untestable nature of the "unconscious state."

The construct of the self-concept has occupied an important role in the development of various theories of personality. The earliest attempt to deal with the self-concept in psychological literature was in James' Principles of Psychology (1890). James' "I-me" dichotomy defined the self as comprised of two identifiable components: the self as actor; and the self as object of its experiences.

Early theorists of behavior and motivation investigated the cognitive criteria for specific behaviors and began to relate the "self" to the real world. Skinner's (1948) operant behaviorism viewed behavior as subject to the regulations of the particular environmental situation. Environmental consequences termed "reinforcements" were those which served to heighten the probablity of a given behavior.

Bandura (1969) modified the behaviorism of Skinner and developed his cognitive behaviorism or Social Learning Theory. This theory stresses that all behavior

> involves a continuous reciprocal interaction between behavior and its controlling condition. Although actions are regulated by their consequences, the controlling environment is, in turn, often significantly altered by the behavior. (p. 58)

Bandura goes on to say that,

> according to the social-learning point of view, in the course of social development a person acquires different modes of coping with environmental stresses and demands. These various response strategies form a hierarchy ordered by their probability of effecting favorable outcomes in certain situations. (p. 65)

The fusion of "operational behaviorism" involving general psychological theories of cognition and motivation with psychodynamic theories of behavior resulted in the emergence of phenomenological thinking. Phenomenological theory postulates an interactive relationship between a person's behavior and their perception of the physical world. The self-concept serves as an intervening dependent variable and regulator of incoming information as perceived by the organism and the organism's response to the external stimuli.

Carl Rogers (1951) formulated the theory of phenomenal self. Combining the phenomenology of Snygg and Combs (1949)

with the holistic, self-actualizing themes of Goldstein (1966), Maslow (1968) and Angyal (1961), Rogers (1959) defined the self-concept as:

> The organized, consistent gestalt composed of perceptions of the characteristics of the "I" or "me" and the perceptions of the relationships of the "I" or "me" to others . . . . It is a fluid and changing gestalt, a process, but at any given moment it is a specific entity. (p. 200)

Within this phenomenological framework, Mead (1934) describes the development of the "social self" as a product of continuous interaction and confrontation between the human organism and the organic and inorganic world. Herbert Mead views the individual self as emerging from a dynamic process of continuous interaction with objects and other selves; as well, Mead suggests the importance of self-discovery through activity with the environment. The awareness of our bodily selves or "inside" is dependent upon a social relationship with the environment (Mead, 1932; 1938).

It was not until the early 1950's that the notion of self was to gain prominence in theories of personality. Allport's (1955) "proprium," derived from the propriate or ego functions of the personality, involve: bodily sense, self-identity, self-esteem, rational thinking, self-image, and propriate striving and knowing. Similar to Mead's (1934) idea of the social self developing through interactions with

others and the environment, Allport noted the importance of experience for self-growth and development.

Several other theorists postulated a developmental process of self and the related importance of experience to that process (Buhler, 1959, 1962; Cattell, 1950; Erikson, 1959; Sarbin, 1952).

Rogers (1948) viewed the self as an interpreter of the surrounding environment. He describes the process of personality development as a dynamic congruence between the phenomenological field of experience and the conceptual structure of the self.

Rogers proposes two systems operating in the development of the self: The self-concept, and the organism. When these systems are in opposition and incongruent, the result is maladjustment; the self thus loses contact with the actual organism experiences and becomes rigidly organized and tense. Experiences that are inconsistent with the self may be perceived as threats, and the greater the threat, the more rigid and defensive the structure of the self becomes in order to maintain itself.

The organism's perception of the phenomenal field is selective and is directed at selecting those perceptions that are consistent with one's view of the self. This perceived self or self-concept thus serves as a frame of reference for evaluating and regulating the actual experiences of the organism.

> The organism reacts to the environmental field as it is experienced and perceived. The vast majority of behavior which is adapted by the individual is consistent with the self-concept. Moreover, behavior alters as the self-concept alters. There exists a high correlation between self-structure and adjustment of the individual. (Rogers, 1948, p. 483)

Snygg and Combs emphasize the importance of experience and perceptions in the formation of the phenomenal self:

> The only reality an individual can know and subsequently respond to is that which he has experienced . . . . As an individual grows and matures he will interpret his environment in the light of his repertoire of past experiences. . . . Those perceptions which are instrumental in the formulation of the individual's concept of himself, his self-concept or phenomenal self, are of paramount importance where development and adjustment of the personality are concerned. (Snygg and Combs, 1949, p. 17)

In general, psychological theories emphasized the importance of the self-concept in individual behavior and in the development of personality.

> Those people who see themselves as undesirable, worthless, or "bad" tend to act accordingly. Those who have a highly unrealistic concept of self tend to approach life and other people in unrealistic ways. Those who have very deviant self-concepts tend to behave in deviant

> ways. Thus, a knowledge of how an individual perceives himself is useful in attempting to help that individual, or in making evaluations of him. (Fitts, 1965, p. 45)

The individual's sense of self in interactions with the environment, yields a phenomenal field of reference for healthy functioning. People with a positive self-concept manifest personality variables characteristic of healthy functioning (Coopersmith, 1964; Fitts, 1969; McCandless, 1967; Rogers, 1951). A number of authors have suggested the importance of meaningful experiences with significant others as a preliminary source for developing the self-concept and subsequently healthy organisms (Cole and Hall, 1970; Coopersmith, 1967; Mead, 1934; Rogers, 1959).

> The idea of self develops only out of interaction with other persons in his environment. . . . Not, then, until the individual experiences other "selves" and becomes conscious that they have attitudes toward him, can his idea of self have any concrete meaning. (Kallenback and Hodges, 1963, p. 129)

Rogers (1959) suggests that the individual has one basic tendency, to actualize, maintain and enhance the experiencing organism. Further to this, he states that the development of healthy individuals is a result of the emergence of self-awareness. The organism moves in the direction of maturation and greater self-responsibility. Other authors who relate the development of self-concept to an individual's basic drives

for growth and independence include Angyal (1969); Horney (1960); and Maslow (1968). Another group of theorists (Epstein, 1973; Kelly, 1955; Vernon, 1963) maintain that an individual generates a set of hierarchically ordered personal constructs (i.e., evaluations, interpretations, hypotheses or postulates) with which to interpret and anticipate one's behavior. These conceptual constructs define the self and give order and meaning to experience. Simply stated, the way people behave depends upon the degree of importance they assign their experiences.

> People seek to maintain or increase the meaningfulness of their view of self by either shifting toward more meaningful implications or by resisting a shift that would create a reduction in meaningfulness. (Kelly, 1955, p. 553)

Kelly points out that individuals devise unique constructs which he calls bipolar dimensions such as "kind-cruel." These constructs give order and meaning to one's impression of events and provide the individual with a possible alternative view of self and an opportunity to change one's view of self by choosing a more meaningful course of action (Brown and Hernnstein, 1975; Fiske and Moddi, 1961; Kelly, 1955).

The bulk of recent literature on self-concept has involved correlational studies concerned mainly with the supposed variables affecting the self-concept; for example, age, sex, socio-economic class, self-development. This has resulted in a linear approach to the study of self-concept. A modest

amount of research has been directed at correlational studies involving reciprocal or interactive relationships between the self-concept and other variables (Wylie, 1979). Wylie points out that if research is to achieve more valid results regarding self-concept, improved theoretical and methodological formulations as well as more self-referent constructs need to be devised. Wylie stresses the importance of self-referent constructs as useful in accounting for human action and suggests that more studies deal with the interactive processes between variables and particular aspects of self-concept. She states that investigation of areas such as "self-actualization, phenomenal self-differentiation and self-consistency" have not resulted in fruitful research.

This research is based on the phenomenological theory of Rogers (1948). The organism's behavior is directly related to the perception the individual has of the environment. These experiences with the phenomenal field result in the formulation of the self-concept. Behavior changes as the individual adjusts to the surroundings; as a result of constant interaction with the environment and evaluational interaction with others, the self-concept is formed. Several authors have noted the importance to self-development of real-life experiences with the environment (Cantril, 1950; Johnson, 1962; Logan, 1980).

Self-concept and the environment. A significant amount of contemporary research in self-concept has investigated

topics related to the psychological effects of a person's social interaction with the environment. Mead (1934) says that it is only humans who have entered into a social relationship with their environment. The growth of environmental psychology in recent years reflects today's concerns with the possible psychological influence of the physical environment (Moore, 1979; Scott, 1974; Winkel, 1969; Wohlwill, 1970).

Through self-activity in the environment people develop pictures of themselves as participants in their own performance. As the challenges become more difficult and individuals learn that they can deal with and accomplish these more difficult tasks, they begin to address themselves with more confidence and gradually develop a different self-perception. Attitudes toward the self change as one proceeds to confront and solve real-life problems that are deemed meaningful to the individual.

Cantril (1950) states that the continued successful action of an individual confronted with seemingly difficult tasks leads to a "feeling of growth, development and creativity" (pp. 128-29). A sense of accomplishment is experienced when an individual has overcome a challenging situation.

In general, psychological theory views the development of the self-concept as a constant interaction between the individual organism and the human and non-human environment. The development of the self-concept is supported by the participation and selection of meaningful alternatives in different problem-solving situations.

The Outward Bound program offers a unique environmental setting that confronts the individual with challenging real-life problem situations. These experiences require for their solution the selection and management of meaningful interactions between the individual and others, and the environment.

Outward Bound and self-concept. Outward Bound is an outdoor education program that has been developed within the self-theory framework. It is a program designed to enhance one's self-concept through challenging and meaningful life experiences in a group setting. The effects of an Outward Bound experience on the self-concept of its participants is well documented in the research literature (Pollack, 1976). There exist, however, few empirical studies in this area; moreover, most of the literature has been based on research conducted in the United States. The following is a survey of the more recent studies related to the effects on self-concept of an Outward Bound experience. The literature in this area includes mainly descriptive reports of interviews and questionnaires. In this study an attempt has been made to include any relevant empirical research supportive of the narrative studies.

In general, psychological inquiry into the impact of an Outward Bound experience on self-concept focuses on two major components of an Outward Bound program: survival experiences which relate to fear stress, life stress, skill development and environmental manipulation problems; and group interaction which deals with the dynamics of being together in an alien

setting in which reciprocity becomes a major factor in the group's survival.

Survival experiences and self-concept. An investigation of the effects on self-actualization and self-awareness of two phases of an Outward Bound program, rock climbing and rapelling were explored. Based on subjects' responses to a questionnaire, it was reported that the fear and excitement experienced during these activities resulted in a positive effect on participant self-awareness and self-actualization. Transformation of the stressful experience into an act of accomplishment during the successful completion of the activities is suggested to be the mechanism for the positive effect (Davis, 1972).

The design of an Outward Bound program allows for opportunities to explore self-challenging activities that offer no guarantee of success. A unique and dynamic learning process is experienced where uncertainty and anxiety are often accompanied by a desire to master a problem-solving task.

Spielberger (1972) classified objective external conditions of danger under the heading "stress." The psychological and physical confrontation with a high risk situation that Outward Bound affords, creates such a stressful circumstance, in which participants are encouraged to find from within those resources that will help them cope and eventually succeed. The human organism reaches higher levels of functioning after successful completion of highly stressful and

anxiety provoking situations (Basowitz et al, 1955). When confronted with a physically and psychologically stressful situation the subject is observed to react in a dramatic way. Meeting these challenges, participants overcome their fears and see that they can now do more than they realized was possible. This feeling is translated into an improved self-image and an increase in self-confidence.

Numerous studies using a variety of questionnaires, observational reports and statistical analyses support the claim of an improved self-concept as a result of an Outward Bound experience (Pollack, 1976). Several of these investigations have shown that an adventure-based experience in the outdoors involving stress and survival training leads to an increase in self-concept (Fersch and Smith, 1971; Fletcher, 1970; Johnson, 1972; Koepke, 1973; Mattai, 1973; Smith, 1975; Wetmore, 1972). These studies reveal a high degree of self-discovery, through stress and increased self-awareness of responsibility for oneself and others. Participants are observed to show improved character and general maturity when relating to others. There appears to develop a greater sense of tolerance, respect and trust in relationships with others (Fletcher, 1970; Schulze, 1970).

John C. Miles, commenting on The Value of High Adventure Activities, (1978) sees "risk recreation" as clearing the mind of its preoccupations and distractions and focusing one's thoughts on the present situation. The participation in

the environment creates a meaningfulness in one's life that leads to what Maslow described as a "fully functioning person." Miles postulates that personal growth and increased positive feelings concerning oneself can be achieved by these "peak experiences." Rogers (1948) and Cantril (1950) have noted the importance of developing skills to control and manipulate one's environment. An Outward Bound program proposes that an individual's self-concept may be improved by controlling one's perception of the social and physical environment.

A person's self-concept is the result of a lifetime of experiences and as such it is difficult to change. Carkhuff (1969) observed that the processes of growth and deterioration take place at crisis points in one's life and that they are cumulative, i.e., the response one has in Crisis A increases the possibility of a similar response at the next, Crisis B. Research into crisis experiences reveals that stress-induced situations which cause rejection, confusion and acting out behavior also signal the organism to change and restructure his behavior (Minuchin and Barcal, 1969). These structural interventions are recognized by the organism as consequences and set limits to the particular behavior. These structures may accelerate behaviors that are rewarding to the individual or extinguish behaviors that are unpleasant to the organism. The survival experiences in an Outward Bound program are arranged so as to challenge the

participant in a way that is meaningful and rewarding to one's personal objectives. Stressful experiences are encountered when confronted with often-times dangerous tasks. In order to overcome and master these tasks students of Outward Bound must restructure their behavior so as to discover the most rewarding and safest channel of activity. Once participants have discovered the most effective means of accomplishing the task, their behavior will be reinforced until the problem has been successfully mastered.

In Outward Bound, group approval and self-satisfaction with the successful completion of a problem task is observed to be an effective reward that builds confidence and self-esteem. In survival camping the fear-stress experiences that challenge the perceived limitations of the participants create a similar situation to that of a crisis. If, as Carkhuff (1969) suggests, crisis situations are times of personal change, then the fear-stress situations which occur frequently in Outward Bound experiences and offer personal success, are times of growth in self-concept and change in behavior.

The stress situations that evoke an anxiety response need not be harmful to the individual. As Bernard (1968) and Berube (1970) stated, certain types of stress may constitute exciting, adventuresome, thrilling experiences. At times the stressful nature of an Outward Bound course invokes anxiety: confronting these stresses and coping with that anxiety may

influence individuals' perceptions of themselves. Indeed, Bernstein (1972) recognized that a wilderness program such as Outward Bound could provide a behavior setting conducive to improved self-functioning: such a program elicits "coping" strategies for reducing dissonance and provides positive reinforcement in mastering challenges. In a study to explore the influence(s) of fear "as experienced in the act of rock climbing upon future self-actualization" (Davis, 1972, p. 7), Davis states that "it is the transformation of fear into enthusiasm which brings about positive self-growth"(pp. 128-129).

In a survey of the objectives of various wilderness programs, Johnson (1972) studied the effectiveness of two adventure programs in relation to three specific areas: personal growth; social functioning; and physical functioning. The results indicated that confidence and self-initiative increased significantly after the experience; also, participants formed stronger and more meaningful relationships at the end of the program.

Koepke (1973) studied the effects of an Outward Bound program on the anxiety and self-concept of 33 male and 11 female participants at the Colorado Outward Bound school.

> Significant differences were found in 16 of the 23 Adjective Check List scales. . . . An examination of the individual scale differences revealed that the changes were generally towards what would be considered

a more positive real self-concept. (p. 24)

Both before and after the course, males checked a significantly higher total number of adjectives than females.

> The comparison of male and female ideal self-concepts revealed that both before and after the course males checked more adjectives, checked more unfavourable adjectives and scored higher in succorance and deference. . . . Females ascribed more favourable adjectives to themselves and were more self-controlled, autonomous and changeable (sought novelty of experience and avoided routine). No significant differences were found between males and females on either pre-test or post-test stated and trait anxieties. (Koepke, 1973, p. 25)

Other studies support the theory that stressful survival experiences such as encountered in an Outward Bound program develop positive self-concepts (Clifford and Clifford, 1967; Nye, 1975; Schulze, 1970).

The physical and social challenges of Outward Bound are designed to permit the participant a high probability of mastering stressful experiences. As a subject continues to overcome challenging tasks a sense of confidence is observed and feelings of accomplishment and self-worth are reported.

> The successive mastery of successive stages of developmental crises presupposes the discovery of new ways of coping with different needs and different kinds of challenges. (Forer, 1963, p. 276)

The permanency of change of self-concept as a result of experiencing a survival program such as Outward Bound has resulted in mixed research findings. In a study using six Kohlberg moral dilemma stories and the Tennessee Self-Concept Scale, 147 co-educational students of the Hurricane Island Outward Bound School revealed a trend towards higher levels of moral judgement and increased self-concept. Gains were reported to be maintained at least for 130 days after the experience (Winkie, 1976).

Wetmore (1972) found that the improvements in self-concept experienced by boys while in attendance at the Outward Bound School decreased after they returned to their home environment. In a study designed to investigate the permanency of changes in self-concept due to Outward Bound, Heaps and Thorstenson (1974) administered the Tennessee Self-Concept Scale in a pre-test and post-test design and again one year after the program. A positive increase in self-concept was found after the treatment as well as one year after the program. Nye (1975) studied the effects of a co-educational Outward Bound program and observed an increase in nine out of ten factors of the Tennessee Self-Concept Scale at the termination of the experience. A three-month follow-up yielded comparable results.

In general, the literature suggests that the length of period for maintaining a positive change in self-concept is related to: the intensity of the program, i.e., the more intense the experience, the longer the gain period; and to the

type of follow-up provided for the participants, i.e., a follow-up program that incorporates the components of an Outward Bound experience in the residential environment of its participants will result in a longer gain period.

Group interaction and self-concept. For the purpose of this study, group interaction is defined as a dynamic interactive relationship amongst interdependent individuals confronted with a stressful and challenging physical and social environment. The term "group dynamics" is recognized in the literature to relate to a host of theoretical orientations designed to study the interactions of individuals within a group experience. This study supposes that the interaction of participants in an Outward Bound program is a dynamic group experience.

The study of group dynamics in a wilderness setting as prescribed by Outward Bound has received little attention in the literature. Current research in group dynamics tends to reveal findings that are similar to observational reports of group processes in Outward Bound. In an investigation of the similarities and differences between Outward Bound and human relations groups, Nelson (1970) compared 115 students in Outward Bound, human relations, and sociology courses (control group). Both Outward Bound and human relations students were found to have attitudinal predispositions significantly different from the controls and experienced attitudinal changes that were more similar to one another than different. Outward Bound students tended toward a direction of openness

to friends, greater tolerance and less independence. A suggestion was made that an "excellent synthesis could be made by combining the Outward Bound idea with human relations techniques" (p. 16).

The importance of reduced group size and changes in instructional role of group leaders in an Outward Bound experience appear to improve the efficiency and personal growth of the participants (Van Waes-Jenner, 1974). Similar findings suggesting a higher probability of improved self-concept in small groups as compared to larger group interaction is reported in the literature on group dynamics (Bormann, 1970; Hare, 1962). A recent study suggests that peer group interaction significantly improves the self-concept of adolescents as compared to facilitator-led groups (Malson, 1973). This study postulated that facilitator-led groups may inhibit such factors as risk-taking and self-disclosure of group members, two important variables in group development. Social identities are derived from a person's group membership and role. Outward Bound is designed to encourage healthy identity-formation using an intimate group process.

Research on group interaction in stressful situations has shown the importance of organizational skills for the survival of a group in dangerous situations (Gunderson and Nelson, 1965; Mintz, 1953; Sherif and Harvey, 1952). Outward Bound prescribes a small group model for interdependent peer group interaction. Group discussions focus on common objectives

that are meaningful to the survival of the group and require each member's participation for their achievement. Reciprocity is used as a way of exchanging ideas and ordering priorities to promote group cohesiveness and decision-making. Reciprocity is an important aspect of the group process in Outward Bound. As the group moves towards its objectives the joint action of group members is required to achieve a common goal. The experience of interdependent activity directed towards a conscious goal creates an atmosphere of trust and respect for others (Bruner, 1966).

A review of several studies related to group interaction of teachers, administrators, and students participating in an Outward Bound program shows improved relations between teachers and their peers, teachers and administrators, and teachers and students (Foster, 1971; Hawkes, 1970; Kesselheim and Douglas, 1972). These studies suggest that as a result of an Outward Bound experience school staff became more tolerant of innovative teaching techniques. Teachers became more receptive and aware of school bureaucracy, stress, and self-control was improved.

Outward Bound invites participants from varied levels of maturity and ability to work together in a group process. This process, founded in meaningful and at times dangerous activity, precludes individual differences and establishes a co-operative exchange leading to a group goal.

School achievement and self-concept. The relationship of self-concept to school performance has had a considerable history of research. Lecky (1945) suggested that scholastic performance tended to be consistent with the individual's self-assessment. A similar theme was developed by Rogers (1951) in a clinical setting. Taylor (1964) in his review of personality differences between high and low achievers, suggested that high achievers tend to exhibit positive self-values and interpersonal relationships as well as having academically rather than socially-oriented activity patterns. Research in this area has shown a positive and significant correlation between self-concept and school achievement in pre-high school and in high school students (Fink, 1962; Payne, 1962; Shaw et al, 1960).

Research in reading disability showed children of high risk reading disability to have a poorer self-concept than those without the disability (Wattenberg and Clifford, 1965; Williams and Cole, 1968).

Wylie (1979) has evaluated over 100 studies relating grade-point average (GPA) or standardized achievement tests to either specific variables of self-concept or overall self-regard. The findings suggest that correlations tend to be higher when specific aspects of self-concept or self-concept of ability or achievement is involved rather than overall self-concept. Factors such as poor reading skills, distractability, lack of motivation may produce "low self-

regard" scores on tests of self-concept (Wylie, 1974). Wylie (1979) further suggests that in order for correlational studies between achievement and self-concept to be interpretable as including a null or significant relationship, factors such as IQ and socio-economic class must be held constant.

Outward Bound and School Attitude

Research on Outward Bound and social interaction within school settings shows improved relationships between students and their peers and between students and their teachers due to an Outward Bound experience (Copp et al, 1972; Fornander, 1974; Godfrey, 1972; Hahn, 1976; Schulze, 1970).

Investigation into the effects of adventure programs and school performance, motivation and absenteeism have had mixed results. Smith (1973) found an improvement in the students' attitudes towards school, but only among the female students. The BACSTOP Project (1973) found an increase in student motivation for school and an increase in grade point average (GPA). Smith (1972) found marked reduction in absenteeism, mostly among girls, but no significant change in grade point average.

There are a few references to educational issues in the literature. Ismail (1966) studied the possible relationship between a physical education program designed with special emphasis on co-ordination and balance and the outcome

variables of academic performance and IQ. He found no significant effect of training on academic performance. Although this study is not strictly speaking one of Outward Bound, it is, however, highly suggestive of a close physical-intellectual relationship, one which operates in Outward Bound. Harmon (1974) was concerned with the specification of affective behavioral changes and educational objectives derived from an Outward Bound program. He suggested the development of a checklist which would accurately measure affective behavior change on a standard Outward Bound course.

Nora Kahn (1976) in Experiential Outdoor Education in the Junior High School, documents in detail the experiential outdoor adoptions in six junior high schools. In her conclusion she states that with time and enough experience there is every indication that experiential outdoor education would grow to be a strong, healthy and important asset to the educational community.

The Effect of Outward Bound on Different Populations

Research related to the value of an Outward Bound experience has concerned itself with a variety of exceptional populations. Kelly and Baer (1968) did a major study on the effects of an Outward Bound experience on delinquency. Their criterion of success was the difference in recidivism rates between the group who attended Outward Bound for 27 days and

the comparison group, most of whom were in training schools. Recidivism for the purposes of their study implied re-committment to a juvenile or adult institution for a new offense. A five year follow-up study indicated that those subjects treated in the conventional manner, i.e., partial parole, private or training school, had a greater percentage (78%) of recidivism after their first year on parole than those who attended Outward Bound (52%). However, with time the effect of Outward Bound eroded under the pressure of environmental conditions and a regression to delinquent behavior took place, so that by the fifth year, both Outward Bound and comparison groups showed no statistical difference in recidivism. Other studies showing similar positive effects of adventure-based survival programs on juvenile delinquents have been done by Collingwood (1972); Thorstensen and Heap (1973); and William and Chun (1973).

The delinquents' poor self-concept and low self-esteem, their feelings of alienation from and towards others, their low threshold of frustration and many other personality characteristics have been frequently described in the literature (Fanin and Clinard, 1965; Fitts, 1969; Jersild, 1961). Despite these traits, several authors have suggested that the most delinquent youth can learn and in time improve their self-concept. Research has reported that adventure-based programs, such as Outward Bound, are

well suited for the delinquent personality (Baer, Jacobs and Carr, 1975; Bernstein, 1974; Kelly, 1974; Kelly and Baer, 1968; Nold and Wipers, 1975).

These studies suggest that a wilderness setting is both unfamiliar and challenging to the spirited youth. Outward Bound offers a fresh start at developing self-confidence through the learning of new skills that are meaningful and offer immediate consequences. The delinquent youth is inherently a risky client placed in a dangerous and challenging environment. The game-like atmosphere of the challenges, the use of a primary group (gang), the outdoors setting and the dangerous tasks that are constantly being confronted, all of these factors attract the delinquent personality. The formal use of the wilderness as a therapeutic tool was very early recognized by Blumenthal (1947) when he reported success with delinquents using camping as an outdoor therapeutic alternative for the emotionally disturbed adolescent (Loughmiller, 1965; Meyers, 1961).

Adams (1969), using the Tennessee Self-Concept Scale and the Sixteen Personality Factor Test, measured the effects of a 30-day survival training program with 17 adolescent patients of the Wyoming State Mental Hospital. The Sixteen Personality Factor test results indicated a significant

decline in neuroticism after the "treatment experience" and trends towards increased ego strength, acceptance, adaptability and tranquility, composure and conscientiousness.

Kaplan (1974), in one of the best evaluations of the outdoor treatment variable, took nine males, aged 15 to 17 years, from the Community Mental Health Center and exposed them to a back-packing program to include wilderness and interpersonal skills. A control sample of 25 was maintained at the Center.. Two types of measures were administered: (a) camp craft knowledge, and (b) self-concept (Rosenberg Self-Esteem Measure, 1972). The results indicated that the experimental group learned a significant number of camp craft skills and although not immediately evident, the self-esteem measure was significant at the time of the follow-up. This was attributed to the time it takes for a change in self-concept to be validated internally. Other studies concluding that the disturbed adolescent's self-image is changed positively due to the effects of outdoor adventure programs include Jerstad and Stelzer (1973), Shark (1975), and Skipper (1974).

Summary

Early theories of personality and behavior focused on the interactive relationship between the human organism and the physical world. Social learning theory (Bandura, 1969) and phenomenology (Rogers, 1951, 1959; Snygg and Combs, 1969) emphasized their importance for personal development, and that of learning coping strategies for survival with the social and physical environment.

In general, self-theorists have postulated the importance for man's survival of purposeful social interactions with the environment (Mead, 1934; Rogers, 1959). These theories all share the view that the self-concept acts as an interpreter of the surrounding environment and that the development of the self-concept is dependent on an individual's meaningful interaction and interpretation of that environment (Cattell, 1950; Cole and Hull, 1970; Coopersmith, 1967; Erikson, 1959; Rogers, 1959). Other self-theorists have shown that a person's self-perception changes through the personal selection of meaningful acts (Brown and Hernstein, 1975; Epstein, 1973; Kelly, 1955).

Research findings on adventure-oriented programs similar to Outward Bound show a general agreement that individuals who are placed in a group setting and confronted with an alien and stressful environment are observed to develop coping strategies which reinforce personal growth. When an individual overcomes and masters these stressful situations

such as are encountered in an Outward Bound experience the individual is observed to formulate an improved self-concept (Koepke, 1973; Mattai, 1973; Smith, 1975; Ulrey, 1974).

The importance of self-concept in school achievement is well documented in the psychological literature (Lecky, 1945; Rogers, 1961; Taylor, 1964). Several studies have shown a positive correlation between the self-concept of students and their school achievement (Irving, 1967; Wylie, 1974, 1979).

Psychological studies have shown that Outward Bound experiences help develop positive self-concepts. Other studies noted relate a causal relationship between self-concept and school achievement. Theoretically, it follows that a relationship exists between Outward Bound and school achievement. Indeed, the few studies relating Outward Bound and school achievement have shown that participants in an Outward Bound experience improve their interactions with peers and authority figures within a school setting (Fornander, 1974; Hahn, 1976; Schulze, 1970, 1971). Social learning theory in Outward Bound presents a theoretical model that attempts to explain changes in participant values and attitudes. Behavioral concepts in an Outward Bound program such as modelling, self-reinforcement and conditioning provide a framework for change in behavior (Harmon and Templin, 1977).

HYPOTHESES

When adolescent boys aged 14 to 16 years participate in a series of weekend field trips taking place over a six-month period and incorporating the essential elements of an Outward Bound program, it is predicted that there will be a change in their self-concept and in their attitudes toward school. The first hypothesis is:

1. Students will show a change in their self-concept as a result of an Outward Bound experience.

The second hypothesis is:

2. Students will show a change in their attitude toward school as a result of an Outward Bound experience.

METHOD

Eighty-four male Grade 9 students, from 9 classes of the 4-year academic program at LaSalle High School were subjects in the experiment. The mean age of the subjects was 15 years, 2 months. A random selection of 45 experimental (Group 1) and 39 control (Group 2) subjects was made. The control group was given a placebo treatment which involved vicarious outdoor education activities, i.e., summarizing local weather reports, measuring precipitation, taking soil samples from the area surrounding the school. They would report their findings to the author so as to feel a part of the program, thus lessening measurement bias. Both groups were exposed to a regular physical education program that involved some outdoor activities.

The Tennessee Self-Concept Scale and the High School Personality Questionnaire were administered to both experimental and control groups one week before the first experience and one week after the last experience.

Measurement of Self-Concept

The Tennessee Self-Concept Scale (Fitts, 1965) was selected because of (a) its specific and direct attention to the self-concept; (b) feasibility of administration in the field; and (c) it had been widely used (in at least 118 previous studies; Buros, 1970); and (d) administration takes approximately 13 minutes and can be given to large

groups without difficulty.

There are two forms of the Tennessee Self-Concept Scale available, (a) the Counselling Form, and (b) the Clinical and Research Form. For the purposes of this study, the Counselling Form was administered. The Clinical and Research Form is designed to diagnose mental health disorders. The form consists of 100 self-descriptive statements. Subjects respond to each statement as being most like themselves on a five point rating scale: (a) Completely false, (b) Mostly false, (c) Partly false and Partly true, (d) Mostly true, and (e) Completely true. (See Appendix D for a description of the 10 categories.) The scale provides scores on 10 personality characteristics. Individuals with high scores tend to like themselves, feel they are persons of value and worth, and have confidence in themselves. People with low scores are doubtful about their worth, see themselves as undesirable, often feel anxious, depressed and unhappy, and have little confidence in themselves. The test-retest reliability coefficients of the scales range from .80 to .90.

Measurement of Attitudes Toward School

The High School Personality Questionnaire (Cattell and Cattell, 1969) is a standardized test that takes approximately 45 minutes to administer to individuals or groups, aged 11 to 18 years. It uses the same unitary personality concepts

as the Children's Personality Questionnaire (Porter and Cattell, 1963), and the Sixteen Personality Factor Questionnaire (Cattell and Eber, 1957). The High School Personality Questionnaire measures 14 distinct independent dimensions or traits of personality. (See Appendix E for a description of the 14 traits.) The 14 factors can be packaged into three broad categories: (a) introversion versus extroversion, (b) low versus high anxiety, and (c) absence versus presence of neurotic trend. Each category combines in one score four or more of the original 14 scores. In terms of student school performance, the High School Personality Questionnaire can obtain useful predictions regarding student adjustment in school, delinquent characteristics, behavioral problems, leadership capacity, and popularity with peers and teachers.

In order to simplify identification and discussion of subject responses the 14 personality traits are referred to in three different ways:

1. Letters of the alphabet refer to different traits, e.g., Factor A, Factor B, . . . Factor Q_4.

2. Technical terms are given to each trait, e.g., Factor C is ego strength; Factor B, is Spearman's "g".

3. Lay language or popular names are provided as synonyms for the technical terms, e.g., a person with a low score on Factor D is technically referred to as a phlegmatic temperament while the comparable everyday description is

"inactive and complacent."

Every factor is described with a bi-polar title using both a technical term and a popular name, for example, a person who has a low score on Factor A is described as sizothymia or aloof, a person with a high score on this factor is considered affectolhymia or warmhearted.

A high score always corresponds to the right-hand pole; however,one should not assume that the right side, "high" pole, is in any psychological sense an indication of "goodness," and the left side or "low" pole an indication of "badness." According to the purposes of the investigation, sometimes the left pole and at other times the right pole may be advantageous. The test consists of 142 questions, each on a three-point rating scale.

Procedure

The experimental treatment consisted of a six-month Outward Bound program entitled "Project Challenge." Experiences took place during weekends and pedagogical days, and were designed according to the Outward Bound program: initiative tests, orienteering, map and compass reading, back-packing, mountain climbing, winter survival skills (snow-shoeing, cross-country skiing, tracking, and going on expeditions). (See Appendix A for description.)

A week before each experience the experimenter placed a

notice in the school bulletin notifying administrators, teachers, and students of the upcoming trip. Students met with the instructor after school to receive information regarding (a) type of experience, (b) destination, (c) departure and arrival times, and (d) purpose of the trip. Each subject received a learning package containing all the necessary information they would need for the particular experience. (See Appendix B for description of learning packages.) Included in this package were pictorial representations of the experience, background information on (a) equipment needed, (b) eating arrangements, (c) safety precautions, and (d) details of the planned route. Students were administered a short series of questions concerning the items in the information package before each trip. (See Appendix C for Evaluation Tests.) Administration of an evaluation component attempted to stress the learning aspect of the experience.

Analysis of Data

Three stages of statistical analysis were required to analyze the data. In the first stage, a series of two-tailed t-tests for correlated samples were performed independently on the pre- and post-test scores of the control group and experimental group. A second series of two-tailed t-tests were performed on the data comparing the

pre-test and post-test scores of both control and experimental groups. This was done in order to establish the randomness of selection of both the control and experimental groups before the treatment and to identify any pre-treatment subject bias between groups. An a priori indication of level of significance was obtained by comparing pre-test and post-test scores for the experimental group and by comparing post-test scores between groups.

In the second stage, a two-way analysis of variance with a mixed repeated measure on one factor was used. This model represents both fixed and random factors in the same experiment. The mixed design is a conjunction of a completely randomized single factor experiment and a single factor experiment with repeated measures. A mixed factorial interaction was designed describing three two-way interactions, that is, group by time (A X B), group by subject (A X S), and time by subject (B X S). Group (Factor A) and time (Factor B) are combined factorially with independent measures on group (Factor A) and repeated measures on time (Factor B).

Table 1 describes in a notational system the relationship of these factors.

If the analysis of the interaction between group by time (A X B) is not significant, our discussion would concentrate on the main effects of Factor A (group) and Factor

Table 1

Notational System

Design

A(BS) or BS(a) Time * Subject (Group)

A = group -- a_1 and a_2 levels of A

B = time -- b_1 and b_2 levels of B

A(BS) Matrix and Treatment Combinations

	a_1		a_2		
	b_1	b_2		b_1	b_2
Subjects			Subjects		
S_1	[a] ABS_{111}	ABS_{121}	S_{40}	ABS_{2140}	ABS_{2240}
S_{39}	ABS_{1139}	ABS_{1239}	S_{84}	ABS_{2184}	ABS_{2284}

[a] ABS represents the score of a single subject in a particular combination of the levels of Factors A and B.

Explanation

a_1 Set of Subjects 1 - 39 a_1 (Factor A) are shown in time b_1 and b_2 (Factor B) but only in combination with $group_1$, i.e., level a_1 (control).

a_2 Set of Subjects 40 - 84 a_2 (Factor A) serves in time b_1 and b_2 (Factor B) but only in combination with $group_2$, i.e., level a_2 (experimental).

B (time). An error term is needed that will contain the comparison by subject interaction that is relevant to the comparisons being tested. The error term for the main effects of Factor A is S(A), that is subjects nested within groups. The error term for the main effects of Factor B is the interaction (A X B), that is, level of group by time. If the analysis of the interaction between group by time (A X B) is significant, our discussion would concentrate on the simple main effects of the interaction and the error term would be B X S(a), that is, time by subject within level of group. Such an analysis would identify the locus of the significant interaction and the simple main effects of the repeated Factor time (B). The main advantage of this type of design is the control for subject heterogeneity and the detection of influences due to the independent factors.

In the final stage of the analysis, a multivariate analysis of variance was used to interpret the overall effects of all the categories of the Tennessee Self-Concept Scale and the High School Personality Questionnaire scale.

RESULTS

The results showed that before the treatment period there were no statistically significant differences between groups on any of the 10 categories of the Tennessee Self-Concept Scale or the 14 categories of the High School Personality Questionnaire scale (see Appendix J). This indicates that there was no experimental bias in the selection of either group and that the experiment was controlled for subject differences.

The comparison of pre- and post-test scores for the experimental group showed *F* ratios significant at the .05 level or better for all 10 categories of the Tennessee Self-Concept Scale and for 10 of the 14 categories of the High School Personality Questionnaire scale (see Appendix L). The comparison of post-scores between the experimental and control groups indicate *F* ratios significant at the .05 level or better for all 10 categories of the Tennessee Self-Concept Scale and for 7 of the 14 categories of the High School Personality Questionnaire (see Appendix M). Based on these results, a further analysis of the data was warranted.

Change in Self-Concept

In a comparison of pre- and post-treatment scores, both the experimental and control groups showed a significant increase on at least 7 of the 10 categories of the Tennessee Self-Concept Scale (see Appendices K and L). These results

suggest that other factors besides the treatment variable had a significant effect on students' self-concept as measured by the Tennessee Self-Concept Scale. Several authors of literature on adolescent development have investigated the importance to personality development and changes in self-concept of individual factors such as psychological growth and maturity, cultural and environmental background, socio-economic class, and physical development (Centers, 1949; Erikson, 1956; Jones and Bayley, 1950; Nemeroff, 1964; Schonfeld, 1959). It is postulated that one or more of these factors effected a positive change in several categories of the Tennessee Self-Concept Scale.

The present educational system may be another possible factor contributing to a positive change in the self-concept of male adolescent students. All students are exposed to an educational environment that offers opportunities for personal growth. Programs that teach concepts such as conservation and preservation communicate real and meaningful information to the student. These programs help make the students aware of themselves and the world around them. This perception of self in relation to the surrounding environment incorporates phenomenological and social learning theory in a real and meaningful way. It is suggested that students who do participate fully in the present educational system develop psycho-social skills, i.e., self-image, physical fitness, leadership, group interaction, and stress management, that enhance their self-

concept.

It is recommended that future studies of Outward Bound programs and the effects on self-concept of these programs, develop controls for isolating psychological, cultural and educational variables which may have significant influence on the results.

Although both the experimental and control groups each showed a significant increase over the treatment period on at least 7 of the 10 categories of the Tennessee Self-Concept Scale, the experimental group demonstrated a higher rate of significance for each of the 10 categories (see Table 2). In the comparison of post-treatment scores of the experimental and control groups, the treatment group shows a higher significant level on all 10 categories (see Appendix M).

In conclusion, these findings suggest that although self-concept may be influenced by a variety of factors besides the treatment variable, an Outward Bound program does have a significant influence on self-concept, and participants in the program show a greater size of effect on self-concept as compared to a control group.

Change in Attitude Toward School

The results of the pre- and post-test scores show a significant increase in student responses on 10 of the 14 categories on the High School Personality Questionnaire scale for the experimental group (see Appendix L) and on 5 of the 14 categories for the control group (see Appendix K).

Table 2

Change in Self-Concept as Measured by Tennessee Self-Concept Scale

	Pre- and Post-Test		Post-Test
Category	Control (df=38)	Experimental (df=44)	Control and Experimental (df=82)
Self-criticism	*	******	******
Total positive	**	****	***
Physical self	*	******	******
Moral-ethical self	NS	******	******
Personal self	NS	******	******
Family self	*	******	****
Social self	*	****	***
Identity	**	*****	***
Self-satisfaction	****	*****	*
Behavior	NS	******	******

* $p < .05$

** $p < .025$

*** $p < .01$

**** $p < .005$

***** $p < .001$

****** $p < .0001$

Unlike the Tennessee Self-Concept Scale, the High School Personality Questionnaire covers a variety of relatively independent aspects of personality including dominance, intelligence, ego strength, extroversion, anxiety, etc. (see Appendix E), therefore a more rigorous treatment of the data is required.

A comparison of the pre- and post-treatment scores for both groups shows that five categories on the High School Personality Questionnaire scale show significance at the .05 level or better for both groups. However, the interpretation of this significance is determined by looking at the directionality of the t-score in combination with the category description found in Appendix E (see Table 2).

The reader is reminded that a high score is not indicative of positive traits, likewise, a low score is not indicative of negative traits (see section in Measurement of Attitude Toward School).

The results indicate that the differences in student attitudes before and after the treatment period show significance in the following categories of the High School Personality Questionnaire: the control group became more reserved (A-), emotionally less stable (C-), submissive and more easily led (E-), felt overprotected (I+), and dependent (Q_2-) (see Table 3).

A comparison of the pre- and post-treatment scores for the experimental group shows significant differences in the

Table 3

Change in School Attitude as Measured by High School Personality Questionnaire

Category	Pre- and Post-Test		Post-Test
	Control (df=38)	Experimental (df=44)	Control and Experimental (df=82)
Reserved-	*		NS
Warmhearted		****	NS
Affected by feelings-	*		NS
Emotionally stable		******	NS
Undemonstrative-	NS	NS	NS
Excitable			NS
Obedient-	*	NS	
Assertive		NS	******
Sober-	NS		
Enthusiastic	NS	*	******
Disregards rules-	NS		NS
Conscientious	NS	******	NS
Shy-	NS		
Adventurous	NS	******	*
Tough-minded-		*	NS
Tender-minded	****		NS
Zestful-	NS	***	******
Circumspect	NS		
Self-assured-	NS	NS	NS
Apprehensive			
Group dependent-	*****		
Self-sufficient		***	******
Uncontrolled-	NS		
Controlled	NS	***	*
Relaxed-	NS	*	*
Tense	NS		

* $p < .05$

** $p < .025$

*** $p < .01$

**** $p < .005$

***** $p < .001$

****** $p < .0001$

following categories of the High School Personality Questionnaire: students became more warmhearted and outgoing (A+), emotionally more stable and mature (C+), enthusiastic (F+), and adventurous (H+); student responses indicated stronger superego strength (G+), more toughmindedness and practicality (I-), zestful and liking group action (J-), self-sufficient and resourceful (Q_2+), identifying more self-control and self-confidence (Q_3+), and more relaxed and tranquil in approaching different situations (Q_4-) (see Table 3 and Appendix E for elaboration of categories).

A comparison of the post-treatment scores of the experimental and control groups shows significance at the.05 level or better in the following seven categories: students in the experimental group exhibit attitudes that relate to significantly greater dominance (E+), are more enthusiastic (F+), adventurous (H+), liking group action (J-), are more self-sufficient (Q_2+), are more controlled and possessing of stronger will power (Q_3+), and indicate a more relaxed and tranquil attitude toward external conditions (see Table 3 and Appendix M).

Comparison of Experimental and Control Groups

The results of the two-way anova with a repeated measure on one factor on the Tennessee Self-Concept Scale and the High School Personality Questionnaire scale show that there is a significant difference between groups at the .05 level or better on the simple main effects of the interaction, group

by time on 8 of the 10 categories of the Tennessee Self-Concept Scale (Self-criticism, Physical self, Moral-ethical self, Personal self, Family self, Social self, Identity, Behavior), and on 9 of the 14 categories of the High School Personality Questionnaire scale (Intelligence, Dominance, Seriousness, Super-ego strength, Adventuresomeness, Group activity, Independence, Self-image, Composure). These results indicate that on specific categories of both the Tennessee Self-Concept Scale and the High School Personality Questionnaire scales, the locus of the interaction, group by time is the simple main effects of the repeated measure time, that is, the experimental group compared to the control group has significantly different responses on the Tennessee Self-Concept Scale and the High School Personality Questionnaire scales as a result of the treatment (see Tables 4 and 5).

A Multivariate Analysis of Variance was performed to compare both groups on the overall effects on the 10 categories of the Tennessee Self-Concept Scale and the 14 categories of the High School Personality Questionnaire scale of the independent factors time, group, and the interaction of group by time. The results show that a significant difference was obtained between groups at the 0.0008 level for the main effects of group, and the 0.0001 level for the main effects of time. The simple main effects of the group by time interaction was significant at the 0.0001 level (see Table 6).

Table 4

Two-Way Analysis of Variance Between Experimental and Control Groups on the Tennessee Self-Concept Scale

Variable	Source of Variance	Sum of Squares	F Value	Level of Significance p
Self-Criticism	Group[a]	1556.15	23.40	<.0005
	Time[a]	2347.52	43.28	<.0005
	Grp by Time[a]	521.17	9.61	<.005
	Sub (Grp) [b]	5453.18	1.23	>.1
Total Positive	Group	6731.46	2.82	>.1
	Time	10848.21	4.28	<.05
	Grp by Time	5787.94	2.28	>.1
	Sub (Grp)	195366.95	0.94	>.1
Physical Self	Group	1865.72	20.26	<.0005
	Time	2768.60	42.40	<.0005
	Grp by Time	383.83	5.85	<.05
	Sub (Grp)	7549.39	1.40	<.1
Moral-Ethical Self	Group	2686.30	14.05	<.0005
	Time	3520.01	25.72	<.0005
	Grp by Time	1732.18	12.65	<.001
	Sub (Grp)	15670.86	1.40	<.1
Personal Self	Group	1378.46	16.09	<.0005
	Time	3085.71	44.98	<.0005
	Grp by Time	1088.67	15.87	<.0005
	Sub (Grp)	7023.54	1.25	>.1
Family Self	Group	23911.16	10.38	<.0005
	Time	45672.02	26.86	<.0005
	Grp by Time	12895.82	7.58	<.01
	Sub (Grp)	188826.36	1.35	<.1
Social Self	Group	5537.67	6.36	<.01
	Time	8023.34	11.98	<.001
	Grp by Time	3136.71	4.68	<.05
	Sub (Grp)	71360.49	1.30	>.1
Identity	Group	7198.95	6.94	<.05
	Time	17141.72	16.26	<.0005
	Grp by Time	5720.05	5.43	<.05
	Sub (Grp)	90195.22	1.04	>.1
Self-Satisfaction	Group	163.03	3.13	<.05
	Time	910.01	22.23	<.0005
	Grp by Time	112.41	2.75	>.1
	Sub (Grp)	4271.14	1.27	>.1
Behavior	Group	3400.73	11.16	<.0005
	Time	5226.01	27.68	<.0005
	Grp by Time	1958.00	10.37	<.005
	Sub (Grp)	24986.76	1.61	<.05

[a]Degrees of freedom (df) = 1

[b]Degrees of freedom (df) = 82

Table 5

Two-Way Analysis of Variance Between Experimental and Control Groups on the High School Personality Questionnaire

Variable	Source of Variance	Sum of Squares	F Value	Level of Significance, p
Reserved - Warmhearted	Group	0.41	0.04	>.1
	Time	160.10	18.27	<.0005
	Grp by Time	6.24	0.71	>.1
	Sub (Grp)	914.49	1.27	>.1
Dull - Bright	Group	1.70	0.57	>.1
	Time	0.00	0.50	<.1
	Grp by Time	10.55	4.21	<.05
	Sub (Grp)	243.44	1.18	>.1
Affected by Feeling- Emotionally Stable	Group	22.00	2.22	<.1
	Time	132.15	21.36	<.0005
	Grp by Time	7.06	1.14	>.1
	Sub (Grp)	812.35	1.60	<.05
Undemonstrative - Excitable	Group	32.13	2.84	<.05
	Time	1.52	0.19	>.1
	Grp by Time	4.41	0.55	>.1
	Sub (Grp)	926.94	1.40	<.1
Obedient - Assertive	Group	109.38	10.22	<.0005
	Time	4.34	0.54	>.1
	Grp by Time	41.15	5.07	<.05
	Sub (Grp)	877.39	1.32	>.1
Sober - Enthusiastic	Group	116.07	12.56	<.0005
	Time	0.38	0.06	>.1
	Grp by Time	50.01	7.95	<.01
	Sub (Grp)	758.00	1.47	<.05
Disregards rules - Conscientious	Group	1.71	0.17	>.1
	Time	166.00	20.16	<.0005
	Grp by Time	39.32	4.58	<.05
	Sub (Grp)	847.78	1.26	>.1
Shy - Adventurous	Group	0.31	0.03	>.1
	Time	224.02	35.37	<.0005
	Grp by Time	57.63	9.10	<.005
	Sub (Grp)	937.17	1.80	<.005
Tough-minded - Tender-minded	Group	6.86	0.80	>.1
	Time	97.52	14.96	<.0005
	Grp by Time	3.78	0.58	>.1
	Sub (Grp)	705.12	1.32	>.1
Zestful - Circumspect	Group	20.68	3.41	<.1
	Time	12.05	1.73	>.1
	Grp By Time	54.89	7.89	<.01
	Sub (Grp)	497.10	0.87	>.1
Self-assured - Apprehensive	Group	10.09	1.07	>.1
	Time	3.72	0.51	>.1
	Grp by Time	1.69	0.23	>.1
	Sub (Grp)	780.40	1.30	>.1
Group Dependent - Self-sufficient	Group	112.99	16.95	<.0005
	Time	7.71	1.30	>.1
	Grp by Time	105.15	17.70	<.0005
	Sub (Grp)	546.62	1.12	>.1
Uncontrolled - Controlled	Group	13.42	1.25	>.1
	Time	26.72	3.26	<.1
	Grp by Time	48.69	5.93	<.05
	Sub (Grp)	880.93	1.31	>.1
Relaxed - Tense	Group	68.22	2.83	>.1
	Time	139.34	5.51	<.05
	Grp by Time	89.15	3.53	<.1

Table 6

Manova Test Criteria for the Hypothesis of No Overall Effect

	Effect		
	Time Prob F =	Group*Time Prob F =	Group Prob F =
Hotelling-Lawley Trace	.0001	.0001	.0008
Pillai's Trace	.0001	.0001	.0008
Wilks' Criteria	.0001	.0001	.0008

DISCUSSION

The major purpose of this study was to investigate whether Project Challenge, an Outward Bound type of program, has a positive effect on self-concept and improves attitudes toward school of its participants.

Self-Concept

The results of this study support the first hypothesis that the participants in Project Challenge will show significant positive change in their overall self-concepts as measured by the Tennessee Self-Concept Scale. Subjects participating in Project Challenge exhibited significant positive changes in the following areas: capacity for self-criticism, clarity of who they are (Basic identity), perception of self-initiated activity (Behavior), physical appearance (Physical self), feelings of moral worth (Moral-ethical self), personal worth (Personal self), value as a family member (Family self), and social interaction (Social self).

Three categories of the Tennessee Self-Concept Scale comprise the Total Positive Score. These are: Identity, Behavior, and Self-satisfaction. The Self-satisfaction category was non-significant for the interaction of group by time; as well, lower scores were observed in this category for experimental subjects than on Identity and Behavior. Fitts (1965) suggests that a respondent may have a lower Self-satisfaction

score and high Identity and Behavior scores. This may be due to the subjects' high expectations of themselves. Further, this author speculates that high expectations of oneself may create stress and anxiety that would be reflected in a lower Total Positive Score. It is interesting to note that the Total Positive Score did not show significant changes due to the treatment, but only showed a significant difference over Time. The author suggests that another variable besides the treatment influenced this score during the treatment time.

The results corroborate the specific findings of the 10 variables of the Tennessee Self-Concept Scale and suggest that the positive changes to the self-concept of the participants of Project Challenge was due to the treatment interaction of the experimental group over time.

School Attitude

The results of this study partially support the second hypothesis that due to participation in Project Challenge the treatment group will have an improved attitude toward school.

The experimental group had significantly different scores compared to the control group on 8 of the 14 categories of the High School Personality Questionnaire scale. Based on their responses to the High School Personality Questionnaire, the experimental group as compared to the control group showed significant differences in the following areas: the treatment group has a greater interest in school, adjusts better to environmental conditions, is more enthusiastic and positive, is more

resourceful and has a better self-image. Scores on other factors were non-significant for the group by time interaction; however, there was a significant difference on some of the main effects for each of these factors. These results indicate that some other variables besides the treatment had a significant effect on the participants' warmheartedness, ego strength, excitability and tendermindedness during the treatment period.

Results show a significant difference between groups at the 0.0001 level for the main effects of the independent variables group and time, and for the interaction of group by time. These results give an overall score for the differences between groups on all 14 dependent variables and support the earlier findings on the individual variables of the High School Personality Questionnaire.

This study confirmed previous research on the positive effects to self-concept (Clifford and Clifford, 1967; Wetmore, 1972), and the improvement in attitude toward school (Fletcher, 1975; Schulze, 1970) of exposing youth to an Outward Bound experience.

The findings of this research support the phenomenological theory of Rogers (1955), and reflect the naturalist notions of Rousseau (1968) and other philosopher-educators who advocated that learning and personal growth could best be accomplished by an interaction with the environment (Froebel,

1904; Herbart, 1898; Pestalozzi, 1951). This study supports the view that the elements of an Outward Bound experience are major factors in developing character and improving social interactions with others (Hahn, 1948), and with the environment (Mead, 1934). The external conditions of danger which Spielberger (1972) classified as stress, and the notion that the process of growth depends on times of crisis (Carkhuff, 1957), are essential elements of an Outward Bound experience. The Outward Bound program creates stressful situations that challenge a person to change his behavior and attitude in order to survive.

This study supports the importance of stress for changing attitudes and personal growth, and observes the importance of group interaction in a wilderness setting to improve group cohesiveness and reciprocity.

Implications for Education

The results of this study show the effectiveness of an Outward Bound experience on the perceived self-concept and school attitudes of adolescent males. Project Challenge has operated for six months from a high school setting. Informal meetings between students and instructors were held after school hours and trips were arranged during weekends and holidays. The findings in this investigation add a new dimension to the applicability of an Outward Bound experience to a high school curriculum timetable.

This study has shown that self-concept and school

attitudes are significantly improved by experiencing an Outward Bound program without removing students for a 26-day block of time, as is typically done in Outward Bound. Further implications of this study relate to educators who are concerned about adolescent development and the development of positive school attitudes. Outward Bound experiences contribute to improve both peer and teacher-student interactions within a school environment. These outdoor experiences offer a wide spectrum for curriculum enrichment. Academic studies can focus on conservation of the natural environment, geographical and historical reports on different areas, biological studies of plant and animal life and their adaptation to different environments, climatological observations and weather reports.

Implications for Future Research

In general, the research literature on Outward Bound has focused on a linear approach to the study of such variables as self-concept and self-esteem. Excluded in these studies are statistical designs that measure the interactive relationships between self-concept and variations in program design such as length of course, time of year, location of experiences, type of activities and nature of instruction.

Despite the number of studies published investigating the effects of an Outward Bound program on self-concept, there is little consistency among the studies in relation to research design, test instruments and treatment outcome (Shore, 1977).

A suggestion for future research is directed at devising better controlled experiments and more consistent methods. In order to achieve this, future research must formalize broader theorizing on the nature of Outward Bound, that is, the interactions during and after the experience. More statistical analysis is needed rather than the volumes of anecdotal observations and statistical reports on one-way analysis; better matched control groups need to be devised. In addition, future research can compare treatment outcomes for different groups based on a variety of independent variables, for example, age, sex, race, socio-economic class, intelligence. Another possibility for future study is the study of each of the four elements of an Outward Bound program. A correlational analysis of these elements should result in relevant findings regarding the process of an Outward Bound experience.

A unique aspect of this study was the design and implementation of several mini-experiences in place of a 26-day intensive course typical of an Outward Bound program. Despite this variation in program design, the treatment outcome in this report supported the findings of other studies of Outward Bound regarding significant positive change to self-concept (Koepke, 1973; Smith, 1975; Wetmore, 1972), and improvement in attitudes toward school (BACSTOP Project, 1973; Smith, 1973).

It appears from the few references to educational issues in the research literature on Outward Bound that future

research could further investigate the effects of this type of program on school achievement, that is, grade point average, attendance, and behavior. A final implication for future research is related to studying the effects of adopting an Outward Bound course to a physical education curriculum.

We can only speculate on the benefits of attaching an Outward Bound program to a high school curriculum, but if the results of this study are a significant reflection of these benefits, then future research in outdoor education is warranted.

SUMMARY AND CONCLUSIONS

This study was designed to determine the effects of an Outward Bound experience (Project Challenge), on the self-concept and attitude toward school of a group of male adolescents. The findings of this study would determine whether the elements of the Outward Bound program as they were organized in a series of weekend field trips could produce significant changes in the self-concept and school attitude of the participants. From this research, suggestions could be made regarding Outward Bound programs as they relate to self-concept and school attitude.

Experimental subjects participated in several weekend trips over a six-month period, and experienced initiative tests, orienteering, backpacking and survival training, while the control group was given a placebo treatment which involved vicarious outdoor education activities. Both the experimental and control groups were administered standardized tests to measure self-concept and school attitude.

The experimental group showed significant positive changes in their capacity for self-criticism, clarity of who they are, their perception of self-initiated activity, their physical appearance, their feelings of moral and personal worth, their value as family members, and their social interaction. With regard to school attitude, the experimental group became more warmhearted, emotionally stable, mature, practical,

zestful, group-oriented, self-sufficient, resourceful and relaxed. The control group's attitudes were more reserved, less stable emotionally, submissive and dependent.

Other factors, which were not controlled for in this study such as psychological, educational and cultural variables, contributed to a more positive self-concept and improved school attitude.

It is concluded that male adolescent students experiencing an Outward Bound program show an overall improvement in self-concept and in their attitude toward school as compared to the control group.

It is further concluded that Outward Bound experiences during weekends significantly increase the self-concept of its participants and improve their attitudes toward school.

It is concluded that other factors such as psychological, educational and cultural factors have an effect on self-concept and school attitude. However, Outward Bound promotes a higher rate of improvement in self-concept and school attitude.

It is suggested to educators that programs such as Project Challenge should be devised so that students can benefit from outdoor experiences which offer a wide spectrum for curriculum enrichment and improve peer and student-teacher interactions within the school.

APPENDICES

APPENDIX A

Project Challenge: Trip Number One

Activity: Backpacking

Destination: Adironak Park, Lake Placid Region

Dates: October 11, 12, 13, 1980.

Staff: Two adults plus two senior high school students.

Goal: To instruct students in the necessary equipment and techniques used in backpacking.

Plan of Action:

(1) Instruction packages were handed out to participating students. The students were told to study the material and be prepared to write an examination before going on the trip.

(2) A one day training session was held to enlarge on the material covered in the instruction package. Questions and answers about the equipment to bring finished the session. An examination on backpacking was handed out. Students had to pass the examination in order to go on the trip.

(3) The first day was scheduled to cover a short distance in order to enable the students to painlessly experience their first time climbing trails with a backpack.

(4) The challenge for the second day was to reach the top of Mount Marcy (highest mountain in New York state).

(5) The final leg of the trip was the most scenic, passing by lakes and climbing through mountain passes.

Results: The weather was harsh but the comraderie of the group was not destroyed. Rain the first day, a blizzard the second and four inches of snow on the final day made the group struggle to keep together; but this pitted us as a group against nature and everyone came away from the trip realizing that they had won the battle. The experience was excellent in teaching students the harsh realities of backpacking with poorly constructed equipment on a heavy pack.

Future Trip Planned: Orienteering Trip.

Project Challenge: Trip Number Two

Activity: Orienteering

Destination: Camp Lewis, near St. Agathe

Dates: October 31, November 1, 2, 1980.

Staff: One adult plus two senior high school students.

Goal: To instruct students in the techniques of compassing and to give the students the necessary skills needed to use map and compass to follow a given trail.

Plan of Action: (1) Instruction packages were handed out to participating students. They were told to study the material and be prepared to write an examination before going on the trip.

(2) A one day training session was held to enlarge on the material covered in the instruction package. Questions and answers about the equipment to bring finished the session. An examination on orienteering was handed out. Students had to pass the examination in order to go on the trip.

(3) The first day would be an intensive study of the compass and its use in the field. Heading, landmarks and sighting would be studied along with a simple orienteering walk. The day would finish with a mile and a half orienteering course through the bush.

(4) The second day would be a full day away from the cabin to study map and compass. After an instruction period the group would be taken to a starting point, given a bearing to follow and told to attempt to complete the trip without the aid of markers. Total distance would be approximately five miles.

(5) The final day would involve the use of declination from field to map and vice versa. Also the students would be able to make their own compass courses and have their friends attempt to follow it.

Results: The three day trip was a success with all participants having learned to use map and compass, and more important, the students developed a sense of calmness when dealing with unfamiliar surroundings in the forest.

Future Trip Planned: Introduction to Winter Camping.

Project Challenge: Trip Number Three

Activity: Introduction to Winter Camping

Destination: Camp Lewis, St. Adolphe d'Howard

Dates: November 21, 22, 23, 1980

Staff: One adult plus three senior high school students.

Goal: To introduce students to the techniques, equipment and problems of winter camping.

Plan of Action: (1) Packages were handed out to participating students. They were told to study the material and be prepared to write an examination before going on the trip.

(2) A one day training session was held to enlarge on the material covered in the instruction package. An examination on winter camping was written by all students before being allowed to participate in the trip.

(3) The weekend turned out to be perfect weather-wise with seasonable temperatures, snow on the ground and frozen lakes. The first day the group had to hike a distance of one mile to the wilderness campsite. Tents were set up, a water hole was chopped in the ice and the group settled down to three days of endurance.

(4) The main event for the second day was a compass course walk through the forest

using the skills developed on the previous trip. The group covered a distance of fifteen kilometres observing animal tracks, various wilderness foods available to survive on, and the best method of following a compass heading through thick brush and rough terrain.

(5) The final day was spent relaxing before the march out to the van. The group organized games of ice football and baseball played on the frozen lake.

Results: The trip was a success due to the extent that each student spent in preparing himself for the cold. They had to anticipate problems with cold feet, frozen food, and chilly sleeping bags. The next Project Challenge trip on winter camping will be a test of their ability to survive in much colder and harsher conditions.

Future Trip Planned: Animal Tracking and Wild Game Dinner.

Project Challenge: Trip Number Four

Activity: Animal Tracking and Wild Game Dinner

Destination: Montgomery Center, Vermont, U.S.A.

Dates: December 6,7, 1980.

Staff: Two adults plus two senior students.

Goal: To introduce students to the art of animal track identification and to experience the taste of wild game.

Plan of Action: (1) Packages dealing with information on animal tracks were distributed to participating students. They were instructed to study the material and be prepared to write an exam.

(2) A one-day training session was held to enlarge on the material covered in the instruction packages. Before the equipment was handed out, each student was required to write and successfully complete an examination on animal tracking.

(3) The plan for the first day was to proceed down to Vermont and spend the day snowshoeing to the summit of Jay Peak in order to take note of the various animal tracks along the route. The group was able to take the Jay Peak Tram back down the mountain, much to the relief of every

tired person in the group. The accommodations were at a dormitory called Granny Grunt's, which had excellent facilities.

(4) The final day was the highlight of the trip, when the group took part in a wild game dinner sponsored by a local church group. The meal included bear, venison, raccoon, rabbit and wild turkey. Most of the group enjoyed the experience while others felt a little squimish about eating such quantities of wild meat.

Results: This trip was an unqualified success. The response from everyone was such that a future trip will be planned in the spring.

Future Trip Planned: Downhill - Cross-Country Skiing.

Project Challenge: Trip Number Five

Activity: Downhill - Cross-country Skiing.

Destination: Mont Gabriel, Camp Lewis

Dates: January 23, 24, 25, 1981.

Staff: One adult plus extra staff for the downhill part of trip.

Goal: To introduce students to the differences and similarities between downhill and cross-country skiing.

Plan of Action: (1) Packages dealing with information on cross-country skiing were distributed to students participating in the trip. They were told to study the material and seek assistance if they had questions on the information.

(2) A time delay in obtaining accommodations was responsible for the cancelling of the training session and testing procedure. These events were postponed until the Saturday morning of the trip.

(3) The first day was devoted to downhill skiing at Mont Gabriel. The students of Project Challenge joined a busload of students from LaSalle High to obtain a special rate for ski rental and lift tickets. Morning instruction classes were given to students who had no experience on skis and the afternoon was a free time to experiment with the longer slopes and

steeper pitches.

(4) The second day was spent cross-country skiing. The group was instructed in the techniques of waxing and ski control and then set on the trail to learn the finer techniques from actual experience. The group struggled and glided to complete a round trip twenty mile trail to St. Agathe and back.

(5) The final day was set aside for the group to try their hand on expert trails. The session was planned for the morning so that the students would have the afternoon to relax, pack up and clean up the dormitory. The trails were excellent with many steep runs and with the exception of one broken ski tip, the group was able to master the trails, albeit, very sedately.

Results: The group consisted of a few skiers and many non-skiers. By the end of the course, everyone could downhill ski and all students had learned the finer details of gliding during cross-country skiing. The trip was another success because of the activity and the excellent weather conditions.

Future Trip Planned: Downhill - Cross-country, Part II

Project Challenge: Trip Number Six

Activity: Downhill - Cross-country skiing, Part II

Destination: Mont Tremblant, Camp Lewis (St. Adolphe D'Howard)

Dates: February 13, 14, 15, 1981.

Staff: Two teachers plus extra staff for the downhill part of the trip.

Goal: To continue the learning process started in the first part of this activity and to establish a challenging goal of excellence in style and performance for the student to attain.

Plan of Action:

(1) Information packages dealing with the technical aspects of downhill and cross-country skiing were distributed to the students who had taken part in the first ski trip. Other students were expected to study the extra material involved with the first packages.

(2) A one-period training and testing session helped to clarify the vague aspects of the activity and the test was used to qualify the students to take part in the trip.

(3) The first day was spent at Mont Tremblant. The students were given morning instructions to help them improve their technique, but also were warned not to assume that they were pros and could handle any run.

The students were able to use both sides of Tremblant, and this session was the ultimate trip to introduce skiers to some of the most difficult ski runs in Quebec.

(4) The second day was spent cross-country skiing in the St. Agathe area. After a short refresher course on wax and stride techniques, the group split into two, to allow some to make a one-way journey, and others, who were looking for a challenge, to complete a circuit route. This second group glided through the 20 mile journey in a blistering three hours.

(5) The final day had the group experiencing expert runs on the cross-country trails. Many members were so excited by some of the steeper pitches, that they went back for a second and third attempt, trying to improve their technique enough to stay on their two feet for a change.

Results: The combination of the first trip with the improved facilities in the second trip helped to move the group from a collection of timid observers to active participants. They developed confidence and improved their skiing techniques immensely.

Future Trip Planned: Snowshoeing - Winter Activities

Project Challenge: Trip Number Seven

Activity: Snowshoeing - Winter Activities

Destination: Jay Peak, Montgomery Center, Vermont, U.S.A.

Dates: April 17, 18, 19, 1981.

Staff: Two teachers plus one senior student.

Goal: To practice snowshoeing in the mountainous area around Jay Peak, and use part of the time in other winter activities such as Alpine and Nordic skiing.

Plan of Action:

(1) Interested students were asked to study information packages based on snowshoeing, first aid, and emergency evacuation techniques.

(2) As this was the last trip, all students of Project Challenge participated. The training session was held during the first night at the dormitory.

(3) The plan for the first day was to allow the students to use the snowshoes in a limited area where problems with adjustments and technique could be spotted and easily corrected.

(4) The second day was devoted to a wide variety of winter activities and the group was split into three. One group opted for downhill skiing at Jay, another group decided to cross-country ski the touring trails around Jay, while the last group

climbed Jay Peak on snowshoes.

(5) The final day was devoted to a session of wilderness first aid and emergency evacuation of injured people using snowshoes and cross-country skis.

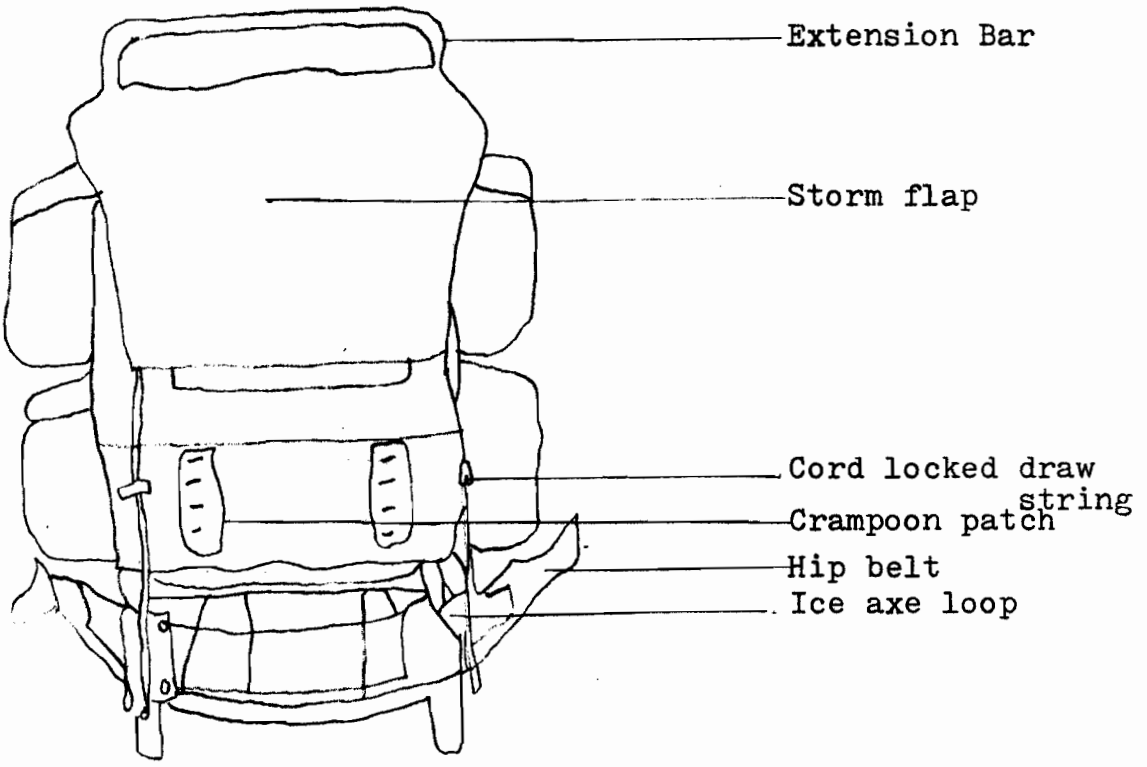
Results: The group enjoyed the chance to select their own activity of interest on this trip. The trip was a huge success not only because of the fact that it was the last one and many students were present, but also because the trips had fallen into a routine and all the kinks of the earlier projects had been ironed out leaving a very efficient and enjoyable plan of action for a three-day weekend field trip.

APPENDIX B

Project Challenge: Trip Number One

Backpacking - Information Package

Backpacks



Types:	Internal or external frame
Loading:	Top loading or front loading
Pockets:	Long or short
Zippers:	Nylon or metal
Frame:	Scurtle or straight
Shoulder strap:	Padded or just straps
Hip Belt:	One piece and attached to frame
Backband:	Padded and strong or mesh
Length:	Full length for winter; half for summer

Tents

Selecting the right tent is much like selecting backpacking clothing. You look for protection from the weather, light weight, special features, and "fit,"or how many people it will accommodate.

All tents we carry are made of synthetics, mostly nylon, for the weight factor alone. The old cotton tent is not particularly suitable for backpacking and will not be covered in the discussion.

Weather Protection: With few exceptions, most backpacking tents have durable construction to provide maximum weather protection. There is the tent body itself and a waterproof rainfly that stretched over the tent creates an air space in between.

The tent fabric is breathable so that body and cooking vapour can press through.

The floor is always a coated, waterproof material, sometimes the same material as in the rainfly, sometimes a heavier weight, more durable material. This waterproof floor extends part way up the sides, anywhere from 8" to 14". This keeps ground moisture from working its way up into your tent. If your tent is properly designed and pitched, rain will drain off the fly and onto the ground or the lower, coated portions of the sidewell.

Ventilation is still needed, even in winter. You can get it through the door and a variety of windows and special vents. In nearly all cases, these openings have both a flap of tent material you can close in stormy or cold weather.

Tent Shapes and Styles: For years, the "A" frame was the only small tent available. It is simple, low cost, hugs the ground and is easily staked down to stand up in gale force winds, features that make it a favourite with many mountaineers.

But the "A" shape does crowd you, tends to make lying down more inviting than sitting. That's why tent makers keep coming up with new frames and suspension systems to create more space inside. These new tents are as easy to pitch as "A".

With any new tent, you should pitch it in your backyard before taking it on a trip.

Flame Retardation: All tents we carry are made with flame retardant fabrics.

Sleeping Bags

Insulation: A sleeping bag's function is to maintain your body's temperature in a comfortable zone during sleep. To decrease heat loss, a layer of insulation is placed between your skin and the cold air.

Dead air space, created by the insulation within your sleeping bag, keeps you warm. The shell and inner fabrics also help retain heat by curbing radiation of heat away from your body. Any material that keeps the air from circulating within the layers of your sleeping bag will provide effective insulation.

The degree of warmth does not depend on the type of material used but on its thickness.

Heat Loss Features: The coldest temperature at which you can sleep comfortably in a specific sleeping bag depends on several factors. Among these are:

Radiation: Sleeping under the stars will cause radiation heat loss which would be less on a cloudy night, in a tent or under a tarp.

Metabolism: Individuals differ greatly in their rates of metabolism. This is of primary importance in determining the required insulation thickness. Your metabolism will vary depending on your physical condition, how tired you are, etc. The type and quantity of food consumed before going to bed is very important in determing how warm you will sleep.

Eating a full, well-balanced evening meal helps your body keep producing heat all night. A snack of dried beef, sausage or cheese just before turning in will help your body generate heat more evenly throughout the night. Eating a candy bar just before retiring will only give you a quick shot of body heat that will probably wear out long before dawn.

Down Insulation: A well designed Down sleeping bag offers unsurpassed warmth and comfort. Why is Down the best insulation material for sleeping bags?

A. Down is light in weight. It is the lightest practical insulating material known to man and is 40% more efficient by weight than the best substitute. It is also soft, odorless and non-toxic in any way.

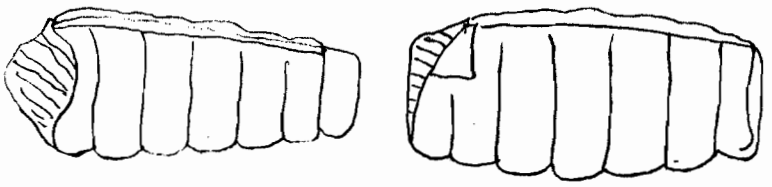
B. Down is breathable. Your body is constantly giving off moisture in the form of perspiration and water vapor. This must pass quickly through the insulation or the bag will become wet in a short time and lose the soft and insulating efficiency. A Down bag that starts out dry passes off this moisture very

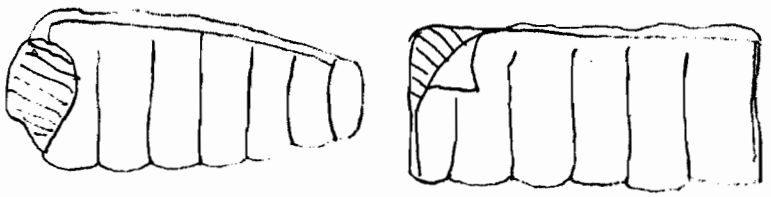
quickly.

C. Down is compressible. A Down bag that has 7" of loft can be crammed into a smaller sack than a 5" thick synthetic-filled bag.

D. Down is resilient. You can lie on your bag or stuff it into a small stuff sack and it will still pop right back to its original thickness. Other insulation materials fatigue more quickly and consequently lose their original thickness sooner, even though they only compress fractionally as well as Down to begin with.

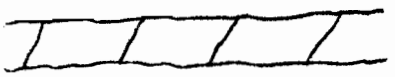
Shapes:



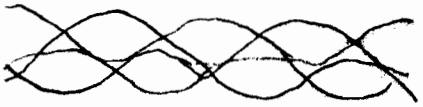


Baffle styles:

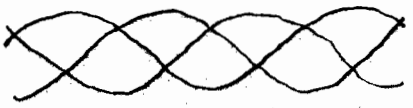
Sewn through



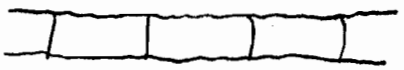
Slant box



Double quilt



V-tube



Straight box

Layered Warmth Chart

Temperature	Clothing
40 - 50°	Underwear
30 - 40°	Underwear, shorts, short-sleeve t-shirt, socks, hat
20 - 30°	Underwear, long pants, long-sleeved shirt, socks, sweater, hat
10 - 20°	Underwear, socks, shorts, windshield, short-sleeved shirt.
0 - 10°	Above plus rain anorak

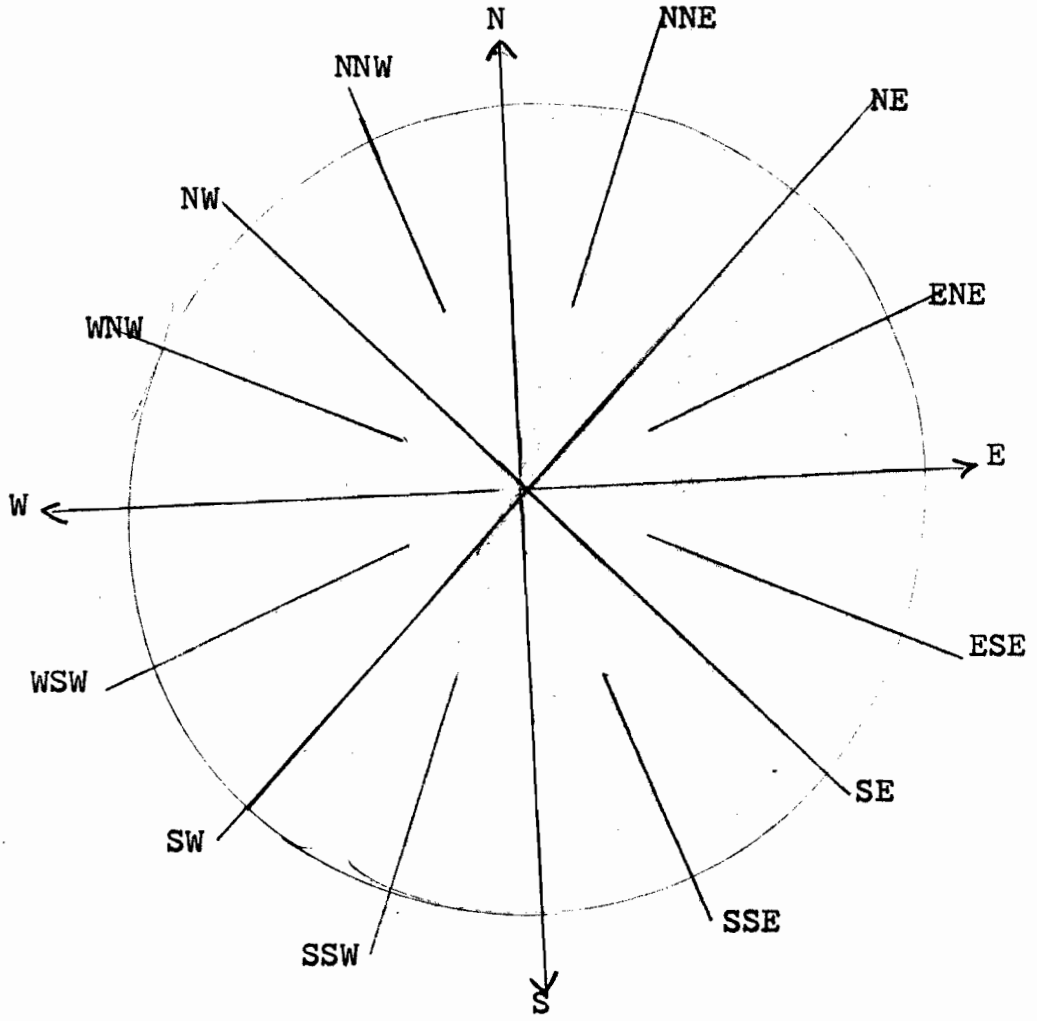
Winter Camping Equipment

sleeping bag	ensolite pad	hand warmer
fuel sticks	flashlight	knife
tent and poles	stove	pots
food	matches	toilet paper
first aid kit	garbage bags	sunglasses
naptha gas (fuel)	hatchet	bowl
cutlery	pills	space blanket
shovel	camera	film
cup	toothbrush, paste	soap
wipe-ups	lip saver	snowshoes
compass	snow seal	day pack
wallet	keys	gloves
hat	vest	jacket
long underwear	sweater	pants
long-sleeve shirt	warmup pants	windbreaker
socks		

Project Challenge: Trip Number Two

Orienteering - Information Package

Part 1: Maps



Cardinal points on a compass

To understand how to read a map, you must first discover what a map can tell you. There are five categories--the five D's of map reading: DESCRIPTION
DETAILS
DIRECTIONS
DISTANCE
DESIGNATION

The description of the map is found in its margin. The title of the map corresponds to the name of the main feature

on the map--a town, a lake, a mountain, or some other prominent location. The location is represented by small numerals that represent the meridian lines and parallel lines to give you the exact longitude and latitude of your map. Finally, the date of the map helps to discover how accurate the map may be.

The <u>details</u> of the map are shown using map symbols. There are four types of map symbols, each with its own distinctive colour: -

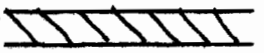
a) man-made features

b) water features

c) vegetation features

d) elevation features.

a) Man-made features are represented with black or red.

highway . . . . . 

secondary road. . . . . 

dirt road. . . . .

trail. . . . .

railroad . . . . .

building . . . . . 

school. . . . . 

church. . . . . 

power transmission . . . . .

b) Water features are represented in blue.

lake or pond . . . . . 

river and stream . . . . . 

spring . . . . . 

marsh or swamp . . . . . 

c) Vegetation features are represented in green.

woods . . . . . .

orchards. . . . . .

vineyards . . . . . .

scrub . . . . . .

d) Elevation features are represented in brown.

index contour . . . . . .

intermediate contour . . . . . .

depression contours. . . . . .

bench marks. . . . . BM △1062 (1062' above sea level)

Directions on a map correspond to the lines drawn onto the map. Most maps are made so that north is at the top of the map and south is at the bottom. West will always be along the left hand edge and east along the right.

Distances will be given with the scales at the bottom of your map. These scales are usually given in four ways:

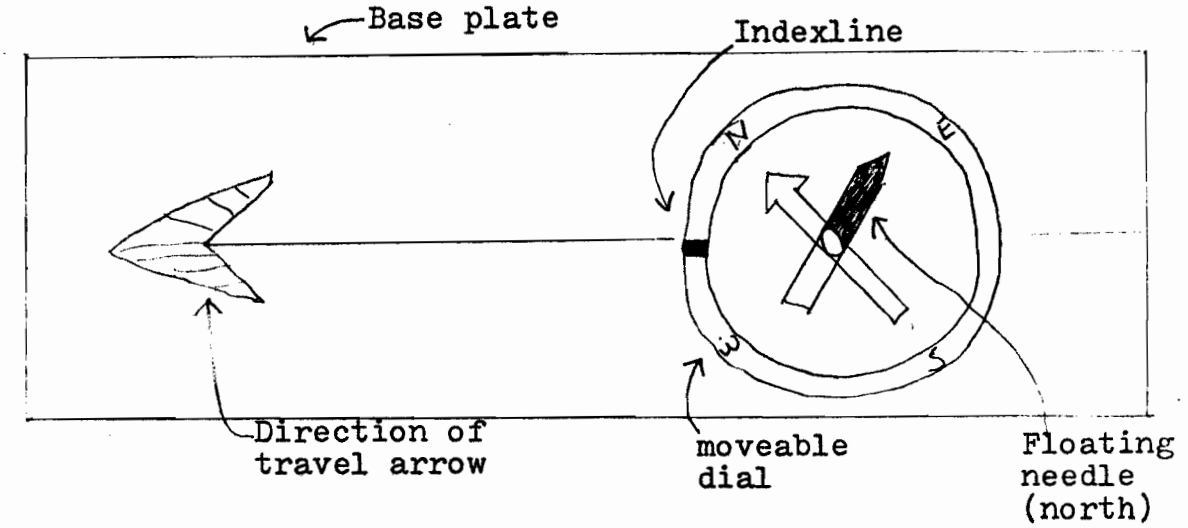
1) as a ratio - 1:24,000
2) as a ruler divided into miles and fractions of a mile.
3) as a ruler divided into thousands of feet.
4) as a ruler divided into kilometers and fractions of kilometers.

Also there is usually a sentence that will explain the distances in one inch. You simply measure the number of inches and multiply by that distance.

Designations refer to the names of places and other map features: regular type is used for places, boundary lines, area names; water designations are in Italics; descriptive notes are given in block letters.

Part 2: Compass

A compass needle - a strip of magnetized steel, balanced on a pin point and free to swing in any direction will eventually come to rest with one end pointing north. On commercial compasses, this end is clearly indicated as the north end by being painted black or red or having an initial N stamped on to it. The force that attracts this needle is the magnetism of the earth. Large deposits of iron ore somewhere north of Hudson Bay and 1400 miles south of the North Pole act as a giant magnet and as a force attracting compass needles. Therefore, there are two north directions to deal with--true north as shown on the map and magnetic north shown by the compass needle. For the time being, we will be studying the north shown on the compass.



Orienteering Compass

The orienteering compass consists of three basic parts: a magnetic needle, a revolving compass dial and a transparent base plate. Using these parts of the compass it is easy to

find directions (bearings) and be able to follow a course. The compass can also be used to sight a distant landmark or object and take a reading (bearing) to that point.

First move the moveable dial until North is directly in line with the index line and the travel arrow.

Secondly, hold the compass in your open palm with the direction of travel arrow pointing to the ends of your fingers.

Thirdly, twist your body around until the floating needle points to north.

You are now pointing directly north. Look in the direction of north and find a prominent landmark that is directly north of you. This step is very important. On an orienteering course, you will have to take many bearings and will not have the time to keep the compass stretched out in front of you. Taking a landmark will enable you to walk in a straight line.

Now turn the moveable dial so that forty degrees is read at the index line. With the moveable dial showing 40^{o}, twist your body so that the floating needle lines up with north on the moveable dial. Walk in the direction that the "direction of travel" arrow points to.

Practice with a few more bearings and be able to turn to any heading and be able to take a landmark after you have twisted yourself so that the compass points to north and you point in the required direction.

A Three-Legged Compass Walk is a skilled compass walk over a short distance.

1) Place a marker (coin, key, etc.) on the ground between

your feet.

2) Set the compass for a direction of 40°.

3) Hold the compass level in front of you and twist your body until the floating needle points north.

4) Stretch out your arm and take a landmark.

5) Walk straight toward that landmark without looking at your compass for 20 steps. Stop.

6) Add 120° to your original 40° making it 160°. Reset the moveable dial to a heading of 160°. Orient the compass to point north, take a landmark and walk 20 paces.

7) Add a final 120° to your heading making it 280°. Reset the dial, determine the direction to walk and take 20 steps.

8) If you have been very accurate, your marker should be at your feet after you complete the final 20 steps.

Practice the three-legged compass walk with many different starting bearings. You have to remember that any time you arrive at a figure larger that 360°, you must subtract 360° to get your next direction.

Part 3: Map and Compass

When you use a compass to find the direction from one point to another point, you don't have to be concerned with the floating needle that points to magnetic north. Instead, we must only remember that the top of the map represents north. It is very easy to find the correct bearing between points.

1) Place the compass on the map so that one edge of the compass touches both the starting and destination points, and

so that the direction of travel arrow points to the direction of the destination.

2) Then turn the moveable dial so that the arrow points to the top of the map (points to North). Most maps have lines drawn on them as north-south meridians. These map lines should be parallel to the lines etched into the bottom of the moveable dial.

3) Your compass is now "set" and all you have to do to get the direction is to look at the degree reading at the base of the direction of travel arrow.

Practice using several different locations. Always remember to point the compass in the correct direction and also to turn the moveable dial to north.

Part 4: Map to Compass to Field

This final section has been saved for the end because it is difficult to understand declination and a challenge to master it. Declination refers to the variation in the number of degrees between true north and magnetic north. Depending on your position in North America or even the world, you must compensate for the difference in degrees between magnetic north and true north.

The magnetic force of the earth pulls the compass needle out of line with true north. The angle between the two directions is the declination.

The continent of North America is divided in half magnetically along a line of zero declination. This line runs from Hudson Bay through western Ontario and down off the eastern coast of

Florida. Along this line, magnetic north and true north are the same. On any location between this zero line and the Atlantic, the compass needle points west of true north. On any location between the zero line and the Pacific, the compass needle points east of true north. Depending on your location in the country, will decide the amount of declination of your compass. If you are going to travel away from your home, check the compass declination in the bottom margin of the map of that area.

If the declination is WEST:

1) Set the compass to the desired bearing from the map.

2) Add the number of degrees of declination to the bearing.

3) Twist the compass housing to the new bearing and take a sighting.

4) Obtain a landmark.

REMEMBER: DECLINATION WEST -- COMPASS BEST. Add declination to your bearing taken from a map.

If the declination is EAST:

1) Set the compass to the desired bearing from the map.

2) Subtract the number of degrees of declination from the bearing.

3) Twist the compass housing and take a sighting.

REMEMBER: DECLINATION EAST -- COMPASS LEAST.

A much easier idea to use with declination is to take the map that you'll be using and draw parallel lines on it to symbolize the required declination. Then instead of using the north-south lines on the map, you line up your compass with the magnetic north lines.

Project Challenge: Trip Number Three

Introduction to Winter Camping - Information Package

Introduction

Most campers confine their camping trips to summer and for novices it's just as well since the wilderness is friendliest and the basics of walking and camping can be learned with least discomfort and danger. However, for those of you looking to extend your camping experiences and also to enjoy the beauty of winter there are many places of fascinating loveliness lying all but forgotten during the winter half of the year. When you have learned the techniques of winter camping, you will soon find that nearly all of the backcountry has become a silent wonderland just waiting for you to come enjoy.

Rules for Winter Camping

1) Be flexible in your attitude. You are going to get cold. Be prepared with extra warm clothes. Don't complain and make everyone else miserable.

2) You won't be travelling very far or very fast each day. Progress will be slow so adjust to that slower pace. Don't be impatient and bother others.

3) You will spend a lot more of your time in and around the campsite. The days are short in winter and the sun goes down early. Suppers must be made and tents set up long before twilight makes sight difficult or nighttime darkness impossible.

4) You must not allow yourself to sweat on a winter outing. Wear layers of clothes and adjust the number of layers to suit your needs. A sweat-soaked shirt will rob your body of heat and as it drys, it leaves you shivering and miserable.

Wool is about the only fabric that can keep you warm even when it is wet. Therefore, try for wool or wool-blend garments.

5) Avoid tight-fitting clothes for winter camping. You need loose spaces and pockets of air to act as insulation and keep your heat in.

6) Wear a hat during winter camping. It really helps to conserve body heat, and looks very stylish as you retire for bed wearing your nightcap.

7) Wear mittens instead of gloves to keep your hands warm in the winter. Gloves force each little finger to act as its own furnace while mittens help the fingers share the chore of staying warm. Bring along one extra pair of mittens in case one pair gets wet. A wet glove is much worse than none at all and is an open invitation to forstbite or worse.

Methods of Travel

Boating: The most elementary method of snow travel is boating; identical to trail walking except for the surface differences, which range from minimal to considerable. A foot of early winter fluff or slush impedes passage only slightly. An impenetrable midwinter crust permits a good pace--until it disintegrates and becomes bottomless in sunshine, wind or rain.

Snowshoeing: When a hiker sinks to the knee, the hips, the chest, the neck; boating is definitely inferior to webbing. Snowshoeing is a go-anywhere sport and it's main attraction is simplicity. No extended training is necessary and with experience a hiker learns refinements to enable him to hoist a pack to his back and pentrate deep into the winter wonderlands.

Cross-Country Skiing: Until a few years ago, this method of transportation was near extinction. However, the high cost of downhill skiing, along with long waits for ski lift lines, gave rebirth to a desire to get away from it all. The technique is easily learned and the solitude of open country mixed with the invigorating feeling of having travelled pleasant miles makes cross-country skiing a very popular pasttime.

The Winter Campsite

When it is time to pitch the tent and settle in for the night, it is important to select a suitable spot.

1) Shape the snow into a flat platform and allow it to lie undisturbed for about thirty minutes. This will give the newly compressed snow a chance to refreeze into a very stable surface.

2) Find a convenient site for the camp latrine. You should use a trowel or shovel to select a spot and cover up afterwards. Planting a marker of sorts into the snow will warn others away.

3) Avoid setting up tents where snow will drop or slide. Be sure to pick a site that has no overhanging tree limbs ladden with snow ready to dump on your tent and flatten it.

Sleeping

1) You will be doing a lot of it, so you better be warm and comfortable.

2) Start off with a ground sheet. A space blanket with an aluminizing surface is the best deal, but even a sheet of plastic or a light blanket will help to give you your first layer of insulation and protection.

3) The second layer is an Ensolite pad (foam pad) that provides the insulation between the frozen tent floor and your warm body.

4) The final defense against the cold is your sleeping bag. Summer bags are not warm enough alone. They must be improved with a very warm blanket, comforter or combination of materials. Down is the warmest insulation material, but if it gets wet, you have a big problem on your hands.

5) Some of you may be fortunate enough to own or be able to borrow a pocket heater that works by burning special charcoal sticks. The greatest way to stay comfortably warm all night is to use one as you sleep.

Things to Remember

1) Do not rely on a wood fire to cook your meals. You must bring a gas stove with you.

2) Put your boots to bed with you or you'll find two frozen blocks in the morning. Use a garbage bag to keep the guck from ruining your sleeping bag.

3) Buy some freeze-dried food for your suppers. They are expensive but very easy to carry and prepare. Taste good too!

4) Drink plenty of liquids. You lose a tremendous amount of water through perspiration and vapour. Keep a cup handy for those fresh mountain streams.

5) Cleanliness is of the utmost importance. Bring along a few moistened towelettes that the "chicken places" hand out. They're great for a quick once over and easily disposed of.

Don't bring along the whole container of Wipe-ups but rather try to find the individual packets.

6) Bring along some garbage bags. Keep your clothes and sleeping bag in one and bring along a few extra to look after your garbage.

7) Finally, bring along extra clothing to have something dry to go to bed with. Never crawl into the sack with wet clothes. You'll be awake all night!

Snowshoes

When winter really settles in and the drifts begin to pile up, slogging through the snow can become impossible unless you spread your weight over a larger area than the soles of your boots. The easiest way to do this, the one requiring the least practice, the cheapest, way to do this is the traditional North American way because snowshoes were invented by the Indians and there have been no significant improvements in design since.

There have always been a myriad of patterns for snowshoes, for each Indian tribe that used them had its own distinctive design. The features of a particular type were dictated by tradition and available materials, but most of all by the snow conditions prevailing in the area where they were used and the activities for which they were designed. The same conditions govern the design and choice of snowshoes today.

Snowshoes are simply webs of thin, strong material stretched over a rigid frame that are attached to the feet and spread the wearer's weight over a wide area of snow. The snowshoes

are held to the foot in such a way that the foot pivots forward freely, but is held fairly strongly from sideways motion. The standard snowshoe is made of varnished strips of cowhide on a curved wooden frame.

The main features of design are: length, width, general shape, tail, and upturn of the toe. The design of snowshoes is supremely functional, and choosing the right type is fairly simple if you know the conditions that pervail where they will be used. A person's weight, and the weight of the pack, deep dry powdery snow or wet crusty slush; wide open spaces, steep mountains or dense forest. All these factors help to decide what type of snowshoe to use.

Beaver-tail: Standard, all purpose snowshoe. Rounded at the toe, and pointed at the tail. The tail ensures good tracking.

Green Mountain: A long narrow shoe designed for fast going on open ground. Standard size is ten inches wide by 50 to 60 inches long. Excellent for flotation in deep, soft snow. Stay away from bush and forest.

Bear-Paw: A flat (no upturned toe) snowshoe, oval shaped and without a tail. Excellent for doing chores around the cabin because the toes do not stick far in front of you, keeping you from your work. They are easy to pack.

Food Menu

Breakfast:	Lunch:	Supper:
oranges (juice)	Sandwiches	Freeze dried meat
bacon and eggs	pepperoni sticks	hot dogs
instant porridge	celery, carrot sticks	hamburgers
instant breakfast	BBQ chicken	Kraft spaghetti
pop-tarts	rolls with:	beans & weiners
pancakes	ham	chili con carne
cereal and milk	meat spread	smoked meat
scrambled eggs	cheese	steak
prunes	tuna	stew
manderin oranges	corned beef	corn
	potato chips	chicken
	cheese	casserole
	peanuts	
	soup	

Snacks:

Brownies
canned pears
canned peaches
fruit cocktail
doughnuts
cake
pudding
chocolate bars

Winter Equipment

sleeping bag	Ensolite pad	flashlight
knife	toothpaste	toothbrush
pots, pans	food	water container
matches	Kleenex	wipe-ups
Jay cloth	dish towel	garbage bag
sunglasses	pen/paper	reading material
radio	hatchet	brush/comb
cutlery	dishes/cup	space blanket
medication	backpack	shovel
camera/film	soap	slippers
lip saver	boots	compass
thermos bottle	identification	day pack
gloves	hat	jacket
long underwear	sweater	long sleeve shirt
pants	underwear	windbreaker
socks	towel	bathing suit
pillow	cards	steel wool
heaters	ropes	paper towels

Project Challenge: Trip Number Four

Animal Tracking - Information Package

Introduction

Who lives in the forest? What creatures inhabit the banks of streams, the shores of lakes, the open meadows or the dense forest underbrush? What are the animals that leave footprints in the mud, and trails in the snow? What has gnawed the bark or clipped the twig?

Tracking is an ancient science that allowed man to progress from picking berries to eating meat. In the animal kingdom, a highly developed sense of smell is the instinct that aids in tracking. Although a dog assuredly sees the rabbit track and recognizes it as a track, he can hardly sense that the shape, size and arrangement spell "rabbit." However, the first whiff with his nose tells him what it is.

Modern man has lost his power of tracking by scent but has developed a greater intellectual refinement. He can read a more complex story in footprints than mere identification. An experienced tracker can describe a complete situation of what happened here by reconstructing the signs of the tracks. Therefore, the first step in becoming a tracker is being able to read the signs.

Reading the Signs

There are three easy ways to help a person identify the presence of wildlife. The first method is to study the tracks made by the animal. Second is to notice the scats or animal droppings left by the animal. Thirdly, certain animals make

distinctive signs on trees and shrubs to indicate their identity. Taken together, these methods can help you make a stab at what animal passed by your way. Beware of making a premature judgement on what you believe to be a track of an animal that has changed its shape because the mud has hardened or the sun has softened the snow and distorted the tracks. The same applies to the droppings. If an animal has been feeding on bulky food, the scat is likely to be unusually large. If the same animal has been eating lean rations, the scat will be small and not at all similar to what you expected that animal to leave.

Be conscious of everything that you see around you in the forest. It is not enough to be struck with awe at the beauty of the lush vegetation or the stark nakedness of the rugged mountains. Look down and see if you can "read the signs" of those who have seen the view before you.

Black Bear: Black bears exist nearly everywhere in wooded areas. Trails of bears will often register a peculiar track. The hind foot often is placed in the exact spot of the front foot track. If the bear is in a hurry, the hind paw mark will overstep the front foot mark. Note also that the "big toe" of the bear paw is the outer one, not the familiar inner one of the human foot. A bear has five toes, but the small one may not register.

Next, take note of "bear trees". Bears will bite and pull off strips of bark from the trunks of pine, spruce and fir trees, sometimes girdling the trees. They eat the juicy inner substance of the bark. Sometimes a young black bear will climb

a poplar tree. The claw marks remain in the soft smooth bark and a scab forms on each so that the climb remains recorded for the life of the tree. Often bears will rub themselves upon a tree to scratch itself or perhaps to leave a scent to warn other bears away. Finally, bear scats are long and similar in appearance to that of a domestic dog. The scats will consist chiefly of hair if the bear has managed to kill an animal. During berry season, the scats are watery and appear like "mudpies" with the telltale mixture of seeds throughout.

Racoon: The tracks of this animal tend to be plantgrade or flat-footed like those of the bear, only in miniature. The track is distinctive with five toes on front and hind feet and the tracks are usually paired with the left hind foot placed beside the right forefoot as the animal walks along. Racoon scats tend to be even in diameter, are black or reddish and made up of an omnivorous diet.

Weasel Family: The weasel family is made up of otters, mink, wolverine, fisher, marten, skunk and badger. The feet of this family are similar except in size, having five toes on both front and hind paw, though the fifth toe may not track. There is a tendency in the group to form a twin-print pattern in the snow. Scats are long and slender, dark brown or black in colour with contents that include rodent fur, bits of bone or feather.

Dog Family: Related to the domestic dogs in America are the wolves, coyotes, and foxes. Their tracks have a similar pattern with four toes and the toenails usually showing in the

track. The front foot is slightly larger than the rear with the heel pads being one of the distinctive differences between the members of this family.

Cat Family: Cats include bobcats, and lynx. Their tracks are very similar to dog tracks except for one important difference. The cats normally keep their claws retracted and therefore claw marks do not appear on their tracks.

Rodent Family: The animals we classify as rodents include all the chisel-toothed animals that gnaw and live on vegetation. They include beavers, porcupines, squirrels, chipmunks and mice. Because of the difference in size and habitat of each animal, the various tracks are not similar.

Ground squirrels go into hibernation in the winter and so their tracks must be spotted on muddy banks or early spring snowfalls. Chipmunks, like squirrels, store up food in the fall and are not about in winter.

Beaver tracks are easily found around beaver dams and lodges or near "runs" in the forest that lead from fallen trees to the shoreline. Perfect beaver tracks are hard to find because the tail may drag and obscure the tracks. Nevertheless, they are distinctive because of the large webbed hind feet. Front paws have five toes while the rear has only four. Beavers occasionally come out in winter to forage. The trail is often a trench that looks very similar to the track made by a porcupine.

Porcupines leave a very telltale brushed appearance in snow caused by the quills scraping the ground and of course the

deep trough mentioned above. Porcupines also leave other signs that are easily identified. The droppings are small rounded pellets and the animal has a preference for the bark of trees. In the winter, the porcupine will gnaw large patches of bark off the tree trunk and at times the complete tree will be ruined.

White footed or Deer Mice make a group arrangement of tracks and often leave the print of their tail in snow. The front paw has four toes while the hind foot has five.

Rabbit: The trail of the rabbit is easily identified in that the hind leg--paws leave a print compared to the smaller print of the front foot. The droppings are also very distinctive being somewhat flattened and circular--almost a thick dish. An important note about rabbit tracks is that the hind feet come ahead of the front feet in normal gait, principally because the rabbit is a hopper.

Hoofed Animals: The hoofed animals including deer and moose leave similar tracks except for a difference in size. The White-tail deer when in motion produces a "hind print in front of the fore paw print" that is so common in the animal kingdom. The deer track is in a heart shape and frequently the toes are separated. Deer scats are small half-inch acorn or round pellet shaped droppings.

Moose are called our greatest deer to inhabit the forests of North America. A moose track is large and pointed with measurements of about five inches long by five inches wide. Moose droppings are rounded in winter and of a sawdust con-

sistency. However, the give away clue is the number of pellets in a sample. It usually is quite large, numbering from 80 to 100 pellets--much more than any other deer. In summer, the scats are soft and take on a "cow mudpie" appearance.

Project Challenge: Trip Number Five

Cross Country Skiing - Information Package

Skis are unquestionably the most elegant way to stay atop the snow and under the right circumstances, they give the skier the feeling of soaring flight. Even on flat terrain, the skier has the advantage of being able to glide with each step. These advantages have been well known for centuries and the history of the cross country ski is a very colourful story.

History

- Until the late 1960's, Europeans were the only ones interested in the sport.
- Today the boom is amazing--with millions of people joining in.
- Carvings on rocks depict skiing as transportation in hunting as far back as 4,000 years ago.
- Vikings and Norsemen used skis back in the 10th and 11th Centuries. They used the skis as a means of transportation in Viking Wars.
- Ancient woodcuts depict the skis as short and wide with animal skins on the bottom.
- Skis have evolved and during the 17th Century one ski was much longer than the other.
- In the 12th Century skiing changed from a means of survival into a sport. Competitions were the reasons for the interest.
- Scandinavian history is full of legends of brave deeds performed by heroic soldiers on skis.
- As Scandinavian people immigrated to North America, the idea

thrills, and each, happily, can be enjoyed at varying levels of competency. Here are the common types of cross country skiing.

Racing: Racing brings out, with equal enthusiasm, kindergarten youngsters and stout-hearted ladies and gentlemen of retirement age. Races are usually conducted over courses from one to fifty kilometers. Equipment is light-weight.

Mountaineering: One of the most thrilling and challenging winter sports, mountaineering is also a specialized subject. Mountaineering, predictably, is mostly done on mountain snow fields or glaciers. It is the perfect sport for hikers and backpackers who wish to extend their outdoor activities from summer to winter. Equipment is a compromise between general touring and Alpine.

Orienteering: A popular competitive sport in Scandinavian countries, it is now gaining appeal with cross country skiers in North America. Orienteering is like car rallying in that you need compasses and maps to successfully get from checkpoint to checkpoint.

Light Touring: For Quebec residents, light touring has a great advantage--it can be done in very little snow. Light touring involves skiing on prepared trails or open spaces such as conservation areas, golf courses or parks. For good skiers, this is fast, graceful skiing on fairly light equipment.

General Touring: This is cross country skiing in wilderness areas--rugged terrain, deep snow, plenty of trees and hills--in short, skiing off the beaten track. Hence its other name "bushwacking." Equipment is rugged but not as heavy as downhill.

Cross Country Skiing -- Skis

The type of skiing you expect to do and where you will be doing it determines the type of skis you should buy. There are three choices:

General Touring: The heaviest, most rugged ski, used mostly in heavy bush country, undulating terrain, deep snow, off the beaten track. Weight: approximately 5½ pounds.

Light Touring: Lighter and thinner, for speed on prepared trails and good for fairly open spaces. Weight: approximately 4½ pounds.

Racing: The lightest, thinnest, strictly for racing. Weight: approximately 3½ pounds.

Types: Skis fall into four basic types: wood, synthetic, combination of both, and metal.

Wood: Wood skis are made of a variety of woods that are laminated as many as 32 times. The most widely used woods are birch and hickory. Birch is the lightest and holds the wax the best. Hickory accepts wax well and is harder. Generally accepted as the very best wood skis (and the most expensive) are hickory with lignostone edges. Lignostone is pressed, impregnated beech wood which gives a fine, hard edge. A light wood such as birch, wears out quickly and is susceptible to breakage, so you are better off with a harder wood--like hickory--and hard edges.

Fiberglass: More expensive than wood skis, fiberglass skis offer durability and less breakage. But the problem at this time is that fiberglass is difficult to wax, especially for

the beginner.

Wood and Synthetic Combinations: The bottoms of some wood skis are coated with fiberglass or various plastics which provide a tough, fast base. They require no tar treatment prior to waxing, but they do not hold wax as well as wood.

Waxless, fish scales and mohair: Fiberglass bases with a fish scale pattern are the latest innovation in the industry. They are considered a waxless base and are convenient to use in wet snow conditions or by people who are turned off by the chore of waxing. However, this surface wears down and is not replacable.

Mohair skis have two thin strips of mohair running along the base. The problem with these skis is that mohair can ice up in freezing conditions and although the strips are replacable, installation can sometimes be tricky.

Metal: Relatively uncommon. These skis have a wood core and a thin aluminum "skin" covering top and bottom.

Cross Country Skiing - Ski-Fitting.

When you have determined your type of ski, length and flexibility are the next considerations.

Length: There are two commonly accepted ways of selecting the proper length of ski for your height. Usually, skis are measured in centimetres, so a general rule of thumb is to add 30 centimetres (a foot) to your height--and that's your ski length. The other way to determine your correct length (unless you have particulary long or short arms,) is to stand the ski beside you and stretch your arm straight up so that the tip of

the ski comes to the wrist. Most experts agree that beginners, especially those with poor co-ordination should subtract about five centimetres from the prescribed length.

Children's Skis: Young children ideally should have shorter skis so they do not get them tangled up. Yet on the practical side, if you buy skis a little bit long, they will do for the next season as well.

Width: A certain amount of confusion can exist here because width is sometimes measured at the widest point of the ski -- at the top -- and sometimes at the midpoint where the ski is always narrower. These are the approximate widths measured at the top: general touring -- 7 centimetres (approximately 3 inches)

light touring -- 6,5 centimetres (approximately 2 3/4 inches)

Racing -- under 6 centimetres (approximately 2½ inches)

Flexibility: How "stiff" or "soft" you want your skis depends both on your personal preference and your weight. Because flexibility is the built-in factor which distributes your weight evenly along the ski and gives the springiness that whisks you over the snow, it is very important.

Do not squeeze the skis together at the bindings to test flexibility as some will suggest. That is for experts. A more reliable test is to stand on the skis before you purchase them. Place a piece of paper under the middle of the skis. If it can be pulled out easily, there is not enough flexibility for your weight. Keep trying different skis. The paper should slide

out with some resistance.

Cross Country Skiing - Bindings

Of the many varieties of bindings, there are only two basic types: the toe binding and the cable binding. Both are simple, lightweight and inexpensive compared to Alpine bindings. The action of cross country skiing involves lifting up the heel to glide, therefore all bindings hold primarily at the toe.

Toe bindings: The plate of this binding has pins which correspond to holes in the boot and a clamp secures the boot to the ski. Called a rat trap, this type of binding is the most popular for both the general touring and light touring ski.

Cable bindings: With a cable binding, a stiff cable extends from a toe iron to a groove around the heel of the boot. Heavier than the toe binding, this type does not allow maximum freedom of the heel. It has the advantage, however, of offering a little more support, making turns easier. Cable bindings are most commonly used for general touring skis. Mountaineering skis have additional bags on the sides of the skis that hook up with the cable. The results are that the boot is held in firmly when control is needed going down vast mountain slopes where you do not want your boot heel sliding off your ski.

Heel plates: A small saw-toothes metal plate, attached to the ski where the heel of the boot touches down, helps grip the boot to keep your foot from slipping off the ski. This steadies the ski in turning and downhill running. It also prevents snow from balling under the foot. Another type is the rubber bubble or "pop up". It merely keeps snow from balling under the foot.

Cross Country Skiing - Boots

Boots should be selected both for the type of skiing and the type of ski. Whatever you buy, make sure your boots are fitted to your bindings.

Types: The three basic boot types correspond with the three types of skis: general touring are rugged, and heaviest of the cross-country type and come up over the ankle.

light touring are a little lighter, usually more flexible and come up to the ankle.

racing boots are the track shoes of cross country, are very light and are cut below the ankle.

Fit: Improperly fitted boots will certainly take the fun out of cross country skiing. Like any boots or shoes, they must be comfortable. Always try on boots with whatever socks you will be wearing -- generally, a light pair as well as a heavier one. With a proper fit you should be snug, otherwise you will get blisters and your kick motion will be impaired. Boots should flex freely at the ball of the foot. Check this by holding down the toe of your boot and pushing the heel up. Now try twisting the boot. If it twists too easily, it is not sturdy enough, and will cause lateral movement when you ski. You need good support under the arches. If your boots do not provide this, put in arch supports.

Synthetics vs. leather: Leather uppers are recommended because they are warm, durable and give good support. As a natural material they allow ventilation, which prevents the excess perspiration that makes feet cold.

There are many synthetic boots on the market today. They are inexpensive, but bear in mind that your feet do not "breathe" in them and they do not give the support that leather does. Another thing is that some synthetics look like leather, so if you are in doubt, be sure to ask.

Soles: Some soles are leather, which require more care, but the most common are the moulded rubber or polyurethane types. Check the binding holes in each boot and check that they fit the pins on the metal binding plate. Remember that just as there is a left and right boot, there is a left and right binding.

Cross Country Skiing - Poles

Cross country ski poles are light and springy, and a good selection is available at a low price.

Types: The most widely used poles are made of bamboo; it has the desired characteristics of strength, light weight and liveliness. Over the past two or three years metal and fiberglass poles meeting these same specifications have been put on the market. These are less likely to break--which may justify your extra cost.

Length: It is easy to determine the proper length of your poles. Standing in a relaxed position, tuck both poles under your armpits. When the tops fit right into the armpits, that is likely to be your length. Slightly longer poles are preferred by some skiers, so the rule is, poles should come somewhere between the armpit and the shoulder.

Pole tips: Cross country pole tips are traditionally bent, so that they will pull out of the snow quickly. But this is

not crucial. The straight-up tip is satisfactory for most skiers, especially for beginners.

Baskets: The industry is quickly finding new designs to replace the old round string and plastic baskets. Special cone and butterfly designs are soon to be the accepted type of baskets.

Cross Country Skiing - Accessories

No need to remind you that sports shops are filled with enticing extras in varying degrees of usefulness. The items described below are practical, and for wilderness skiing, many of them are in the "necessity" category.

1) Rucksack: provides the easiest way to carry your supplies without impeding your skiing. Nylon ones are very reasonable in price and can be obtained much cheaper at army surplus stores.

2) Compass: may prove to be a blessing, but only if you know how to read it.

3) Extra ski tip: a "must". Made of either metal or plastic, it is easily attached and costs only three or four dollars. If you are a couple of hours away from home and break a ski, it can be a long, tiring, chilly limp home on one good ski.

4) First aid kit: it should contain bandages and band-aids for cuts and scratches, tensor bandages for sprains, aspirins and salt tablets. Injuries are not common in cross-country skiing, but the outdoors can be hazardous, even for experts.

5) Knife: a well-sheathed hunting knife or all-purpose

pocket knife is invaluable for fire making on the trail.

6) Downpullover: folds all into itself so that it occupies no more space than a small loaf of bread.

7) Map case or plastic bag: to keep your maps dry.

8) Wine skin: excellent for toting fruit juices.

9) Vaccuum bottle: a hot drink in the cold woods can be a treat for everyone.

10) Waterproof matches: or a metal (flint) match--which is inexpensive and lasts indefinitely.

11) Candles: dandy for getting a fire going.

12) Emergency blanket: made of special insulating foil about the size of a package of cigarettes, it unfolds to blanket size.

13) High pitch whistle: or an ordinary whistle in case you should get separated from your gang.

14) Flares: there are many types but pencil flares are the easiest to pack.

15) Glucose tablets: a source of energy. Handy on the way home when you have gone further than you expected to.

Evacuating the Injured

An injury to one of the members of the party should be handled with calmness and level-headed decisions. At times it will be best to have one or more stay with the injured person while two go for help. This decision depends on how close by the assistance may be. However, after considering the seriousness of the injury, the distance to the road, the nature of the terrain, the strength of the people in the party and the

expectations of the weather, all have a part to play in deciding if evacuation should be attempted.

If the party is on snowshoes, you can attempt two types of rescue. It may be possible to carry out the injured person on your back. Tie a length of rope and make a sling that goes around your neck and under your arms for the person's legs. Another method is to place the person on a litter. Again, shoulder straps like a sling will make the litter far less tiring to carry.

If your party is on skis, the best idea is to construct a sled using the injured person's ski. NOTE: Building a sled takes some time and equipment. You must be super safe in using a sled because the injured person cannot care for himself. The person will also be susceptible to the cold because they are not active.

Equipment List:

backpack	sleeping bag	pot/pan
identification	cutlery	bowl/plate
flashlight	knife	rope
food	matches	toilet paper
rainwear	map	compass
garbage bags	cup	extra clothes
winter clothes	hat	gloves
boots	medication	brush
camera/film	books	games
radio	paper/pen	

Project Challenge: Trip Number Six

Cross Country Skiing - Information Package

This trip was planned for students in Project Challenge who were unable to attend the previous outing, Trip Number Five. Therefore, the information package is the same as for the previous trip.

Project Challenge: Trip Number Seven

Snowshoeing, Winter Activities - Information Package

This information package is a combination of information packages for Trip Numbers Three and Five.

APPENDIX C

Project Challenge: Trip Number One

Backpacking - Evaluation Test

(1) A backpack correctly loaded should have
   a) all the heavy weight at the bottom.
   b) all the heavy weight at the top.
   c) all the heavy weight equally distributed.

(2) To increase warmth in a sleeping
   a) use an air mattress.
   b) sleep with nothing on.
   c) Wear some clothes to bed.

(3) What areas of the body must be kept warm?
   a) central trunk and head
   b) hands and feet
   c) stomach and kidneys

(4) The best style of a sleeping bag is
   a) rectangular shape
   b) mummy shape
   c) barrel shape

(5) What insulation material is considered best for a sleeping bag?
   a) cotton
   b) polyester
   c) down

(6) A "double tent" has the following type of construction:
   a) a pup tent with plastic fly.
   b) a waterproof fly with a breathable tent.
   c) a waterproof tent with a breathable fly.

(7) Which of the following articles is most important to a backpack?
   a) water
   b) candies
   c) meat

(8) "Hypothermia" is recognized by
   a) sweating b) convulsions c) irrational behavior

(9) What is the first procedure in cases of cuts and bleeding?

a) inspect, pressure, and bandage.

b) bandage, pressure and immobilize.

c) immobilize, pressure and bandage.

(10) The "New Ethic" in backpacking is to

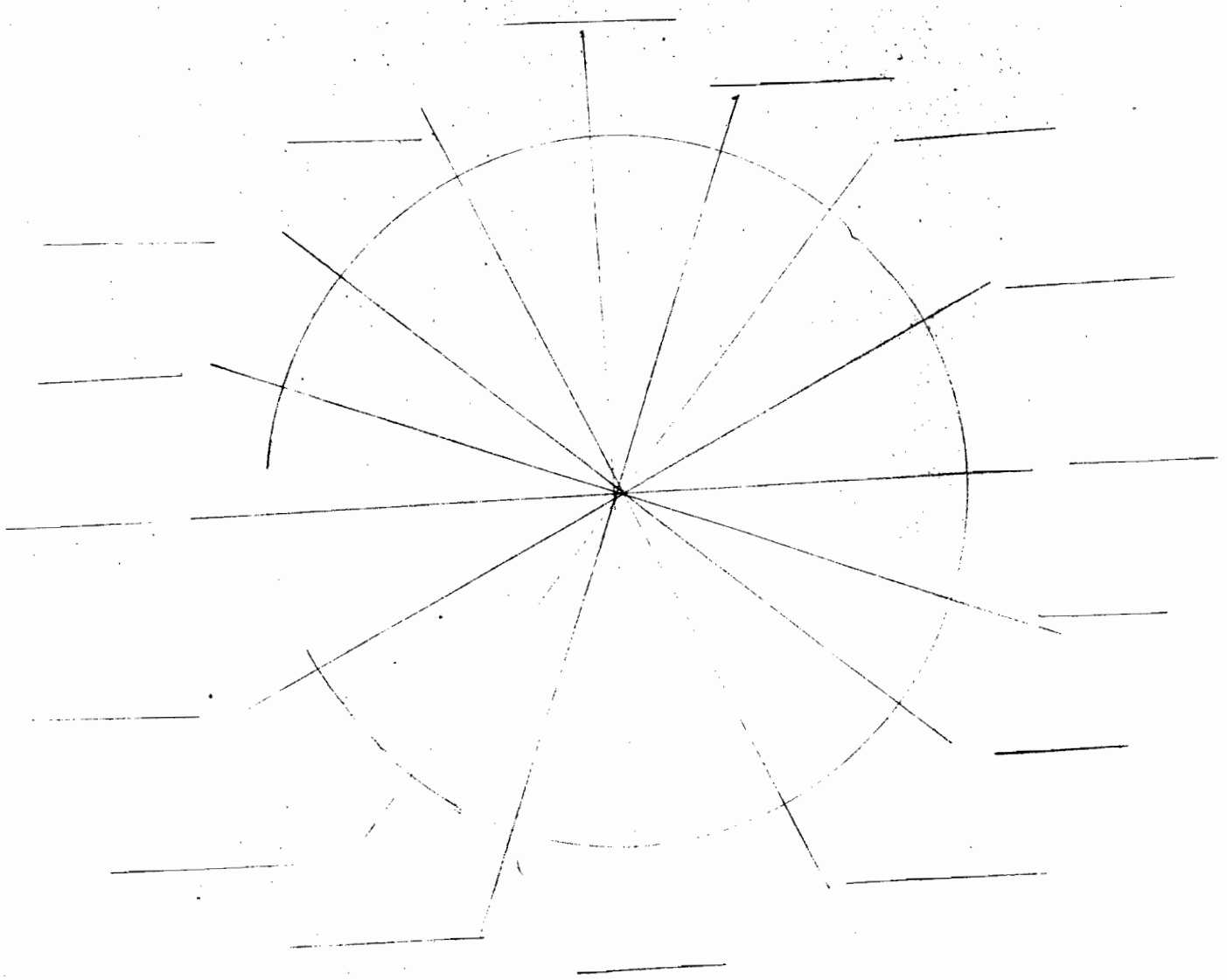
a) be friendly to other hikers.

b) use the land but do not abuse it.

c) Leave no record of your visit.

Project Challenge: Trip Number Two

Orienteering - Evaluation Test



(1) Write in the abbreviation of the 16 cardinal points of a compass.

(2) What colour are bodies of water shown on a map? _____

(3) What does this symbol stand for?  _____

(4) After correctly obtaining a correct bearing, what is the most important step that follows? _____

(5) Complete these statements: Deviation West, compass _____
Deviation East, compass _____

Project Challenge: Trip Number Three

Introduction to Winter Camping - Evaluation Test

(1) The best method of dressing to ensure warmth is to
   a) wear a heavy warm parka.
   b) dress in layers.
   c) wear a hooded garment.

(2) The best fabric to retain warmth is
   a) cotton
   b) nylon
   c) wool

(3) Which of the following would you bring on a winter camping trip?
   a) loose fitting clothes--hat, mittens
   b) tight fitting clothes--hat, gloves
   c) loose fitting clothes--hat, gloves

(4) An important point in selecting a campsite in winter is
   a) to stay away from open spaces.
   b) to avoid overhanging branches above the tent.
   c) to select a site close to trees.

(5) The warmest shape of sleeping bag is
   a) rectangular
   b) barrel
   c) mummy

(6) What must you remember to do before retiring at night?
   a) put out the cat
   b) put your boots to bed
   c) put on your nightcap

(7) The shape of a snowshoe is dependant on
   a) snow conditions
   b) Indian legends and customs
   c) available materials

(8) The prime function of a snowshoe is to

a) allow one to travel fast.
b) support one's weight.
c) allow one to bushwack through heavy forest.

(9) The standard shape of a snowshoe is

a) Green mountain.
b) bear paw.
c) beavertail.

(10) Frostbite is cured by

a) rubbing the affected area.
b) placing warmth on affected area.
c) placing snow on affected area.
d) amputation.

Project Challenge: Trip Number Four

Animal Tracking - Evaluation Test

(1) Animals track other animals using
   a) sight alone
   b) smell
   c) instinct

(2) List the three methods used to help a person to identify the presence of wildlife.
   a) _____
   b) _____
   c) _____

(3) Animal tracks can be misleading because
   a) other animals have stepped into the track.
   b) the sun has distorted the track.
   c) most animals have the same track.

(4) The big toe of a bear is
   a) on the outside of each paw.
   b) on the inside of each paw.
   c) not present -- all toes are of equal size.

(5) Bears eat the bark of
   a) apple trees
   b) fir trees
   c) willow trees.

(6) Describe the variations of Bear Scats. _____
_____
_____

(7) List the members of the weasel family (4). _____
_____
_____

(8) Members of the dog family have
   (a) (3) three toes
   (b) (4) four toes
   (c) (5) five toes

(9) Porcupines and beavers leave tell-tale clues in their tracks. What are they? _____

_____

_____

(10) What are several differences between white-tailed deer tracks and moose tracks? _____

_____

_____

_____

Project Challenge: Trip Number Five

Cross Country Skiing - Evaluation Test

Section I

Read each question below and select the answer that best responds to the question. Circle the correct answer on the answer sheet.

1) Cross country skiing was invented in
   a) England
   b) Siberia
   c) Scandinavia
   d) North America
   e) None of these

2) Cross country skiing was originally used
   a) to allow hunters to check their trap lines.
   b) to allow soldiers to travel into battle.
   c) to help travellers as a means of transportation between cities.
   d) both "a" and "b"
   e) None of these

3) The first skis constructed, obtained traction from
   a) a rough wooden base of the ski.
   b) using animal fat as a wax.
   c) the sentence is false, early skis had no traction.
   d) by using animal skins.
   e) none of these

4) Another name for cross country skiing is
   a) ski touring b) Nordic skiing c) Alpine skiing
   d) both "a" and "b" e) none of these

5) Racing skis weigh approximately

   a) 5½ kg.

   b) 3½ kg.

   c) 4½ lbs.

   d) 1½ lbs.

   e) none of these

6) General touring skis are best suited

   a) for alpine skiing.

   b) for speed races.

   c) on prepared trails.

   d) off the beaten track.

   e) on fairly open space.

7) Wood skis are

   a) made up of laminated pieces of wood.

   b) cut from a solid piece of wood.

   c) used only by racers.

   d) made up of an outer layer of wood with an inner layer of granite.

   e) the most popular type of ski.

8) Synthetic skis are

   a) made of wood.

   b) avoided by most skiers.

   c) too rigid to use for cross country skiing.

   d) usually made of fiberglass.

   e) none of these

9) Skis are correctly measured when

   a) 30 cm. is added to your height.

   b) you subtract 5 cm. from your height.

   c) you measure the skis to your fingertips.

   d) they are the distance between your outstretched fingertips.

   e) the sentence is false; any length of ski is suitable.

10) The basic step for forward motion on cross country skis is the

   a) walking step

   b) double poling

   c) diagonal stride

   d) gaiter shuffle

   e) boot-tip technique.

Section II

Answer the following questions in paragraph form on foolscap.

Answer #1 and 7 other questions.

1) Why is cross country skiing so popular today?

2) List the types of cross country skiing and briefly describe each type.

3) What is the importance of "flexibility" in skis and how can you test for it?

4) Describe the different types of boots available for cross country skiing.

5) What are the five most important accessories you would bring on a cross country skiing outing?

6) Explain the techniques and technical terms for going uphill easily and controlling descents.

7) If you were to introduce a novice friend to the sport of cross country skiing, what advice would you give to help him select the correct size of cross country ski equipment?

8) How do ski manufacturers produce skis so that they will not slip or slide backwards?

9) What are the important aspects of ski poles?

10) What considerations would you take into account when purchasing equipment for a young child?

Project Challenge: Trip Number Six

Cross Country Skiing - Evaluation Test

This trip was planned for students in Project Challenge who were unable to attend the previous outing, Trip Number Five. Therefore, the evaluation test is the same as for the previous trip.

Project Challenge: Trip Number Seven

Snowshoeing, Winter Activities - Evaluation Test

This evaluation test is a combination of evaluation tests for Trip Numbers Three and Five.

APPENDIX D

A Brief Description of the 10 Categories in the Tennessee Self-Concept Scale

1. Self Criticism Scale (SCS).-- This scale is composed of ten items.* These are all mildly derogatory statements that most people admit to as being true for them. Individuals who deny most of these statements most often are being defensive and making a deliberate effort to present a favorable picture of themselves. High scores generally indicate a normal, healthy openness and capacity for self-criticism. Extremely high scores (above the 99 percentile) indicate that the individual may be lacking in defenses and may in fact be pathologically undefended. Low scores indicate defensiveness, and suggest that the positive scores are probably artificially elevated by this defensiveness.

2. Total Positive Scale (TPS).-- This is the most important single score on the form. It reflects the overall level of self-esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed and unhappy; and have little faith or confidence in themselves.

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*These items have been taken from the L-Scale of the Minnesota Multiphasic Personality Inventory (1951). Copyright 1943, The University of Minnesota. Published by the Psychological Corporation. Reproduced by special arrangements.

3. Identity Scale (IS).-- These are the "What I am" items. Here the individual is describing his basic identity--what he is as he sees himself.

4. Self-Satisfaction Scale (SSS).-- This score comes from those items where the individual describes how he feels about the self he perceives. In general this score reflects the level of self-satisfaction or self-acceptance.

5. Behavior Scale (BS).-- This score comes from those items that say "this is what I do or this is the way I act."

6. Physical Self Scale (PSS).-- Here the individual is presenting his view of his body, his state of health, his physical appearance, skills and sexuality.

7. Moral-Ethical Self Scale (MESS).-- This score describes the self from a moral-ethical frame of reference--moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.

8. Personal Self Scale (PSS).-- This score reflects the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others.

9. Family Self Scale (FSS).-- This score reflects one's feelings of adequacy, worth, and value as a family member. It refers to the individual's perception of self in reference to his closest and most immediate circle of associates.

10. Social Self Scale (SSS).-- This is another "Self as perceived in relation to others" category but pertains to

"others" in a more general way. It reflects the person's general sense of adequacy and worth in his social interaction with other people in general.

Validity.-- According to Fitts, ninety items of the Tennessee Self-Concept Scale were derived from other scales of self-concept measures developed by Balester, Engel, and Taylor. The ten items of the Self-Criticism Scale were taken from the L-Scale of the Minnesota Multiphasic Personality Inventory.

Appendix E

The 14 Categories of the

High School Personality Questionnaire

		Low Sten Score Description (1—3)	Alphabetic Designation of Factor	High Sten Score Description (8—10)		Index Number* Universal
Professional Term	(A—)	Sizothymia	A	Affectothymia	(A+)	U.I.(L,Q)1
Popular Terms		***Reserved***, detached, critical, aloof, stiff		***Warmhearted***, outgoing, easygoing, participating		
Professional	(B—)	Low intelligence (Crystallized, power measure)	B	High intelligence (Crystallized, power measure)	(B+)	U.I.(L,Q)2
Popular		***Dull***		***Bright***		
Professional	(C—)	Lower ego strength	C	Higher ego strength	(C+)	U.I.(L,Q)3
Popular		***Affected by feelings***, emotionally less stable, easily upset, changeable		***Emotionally stable***, mature, faces reality, calm		
Professional	(D—)	Phlegmatic temperament	D	Excitability	(D+)	U.I.(L,Q)4
Popular		***Undemonstrative***, deliberate, inactive, stodgy		***Excitable***, impatient, demanding, overactive, unrestrained		
Professional	(E—)	Submissiveness	E	Dominance	(E+)	U.I.(L,Q)5
Popular		***Obedient***, mild, easily led, docile, accommodating		***Assertive***, aggressive, competitive, stubborn		
Professional	(F—)	Desurgency	F	Surgency	(F+)	U.I.(L,Q)6
Popular		***Sober***, taciturn, serious		***Enthusiastic***, heedless, happy-go-lucky		
Professional	(G—)	Weaker superego strength	G	Stronger superego strength	(G+)	U.I.(L,Q)7
Popular		***Disregards rules***, expedient		***Conscientious***, persistent, moralistic, staid		
Professional	(H—)	Threctia	H	Parmia	(H+)	U.I.(L,Q)8
Popular		***Shy***, timid, threat-sensitive		***Adventurous***, "thick-skinned," socially bold		
Professional	(I—)	Harria	I	Premsia	(I+)	U.I.(L,Q)9
Popular		***Tough-minded***, rejects illusions		***Tender-minded***, sensitive, dependent, overprotected		
Professional	(J—)	Zeppia	J	Coasthenia	(J+)	U.I.(L,Q)10
Popular		***Zestful***, liking group action		***Circumspect individualism***, reflective, internally restrained		
Professional	(O—)	Untroubled adequacy	O	Guilt proneness	(O+)	U.I.(L,Q)15
Popular		***Self-assured***, placid, secure, complacent, serene		***Apprehensive***, self-reproaching, insecure, worrying, troubled		
Professional	(Q_2—)	Group dependency	Q_2	Self-sufficiency	(Q_2+)	U.I.(Q)17
Popular		***Sociably group dependent***, a "joiner" and sound follower		***Self-sufficient***, resourceful, prefers own decisions		
Professional	(Q_3—)	Low self-sentiment integration	Q_3	High strength of self-sentiment	(Q_3+)	U.I.(Q)18
Popular		***Uncontrolled***, lax, follows own urges, careless of social rules		***Controlled***, exacting will power, socially precise, compulsive, following self-image		
Professional	(Q_4—)	Low ergic tension	Q_4	High ergic tension	(Q_4+)	U.I.(Q)19
Popular		***Relaxed***, tranquil, torpid, unfrustrated, composed		***Tense***, driven, overwrought, fretful		

* The letters L or Q following the index designation refer to the type of data in which this factor has been located. Thus, L indicates "life data" or data which is based primarily upon ratings of individuals; Q indicates "questionnaire data" or self-report data. The T designation, which will be found later in the handbook, indicates objective "test data," that is, misperceptive test devices or performance measures.

APPENDIX F

Tennessee Self Concept Scale

by William H. Fitts, PhD.

INSTRUCTIONS

On the top line of the separate answer sheet, fill in your name and the other information except for the time information in the last three boxes. You will fill these boxes in later. Write only on the answer sheet. Do not put any marks in this booklet.

The statements in this booklet are to help you describe yourself as you see yourself. Please respond to them as if you were describing yourself to yourself. Do not omit any item! Read each statement carefully; then select one of the five responses listed below. On your answer sheet, put a circle around the response you chose. If you want to change an answer after you have circled it, do not erase it but put an X mark through the response and then circle the response you want.

When you are ready to start, find the box on your answer sheet marked time started and record the time. When you are finished, record the time finished in the box on your answer sheet marked time finished.

As you start, be sure that your answer sheet and this booklet are lined up evenly so that the item numbers match each other.

Remember, put a circle around the response number you have chosen for each statement.

Responses-	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
	1	2	3	4	5

1. I have a healthy body.
3. I am an attractive person.
5. I consider myself a sloppy person.
19. I am a decent sort of person.
21. I am an honest person.
23. I am a bad person.
37. I am a cheerful person.
39. I am a calm and easy going person.
41. I am a nobody.
55. I have a family that would always help me in any kind of trouble.
57. I am a member of a happy family.
59. My friends have no confidence in me.
73. I am a friendly person.
75. I am popular with men.
77. I am not interested in what other people do.
91. I do not always tell the truth.
93. I get angry sometimes.
2. I like to look nice and neat all the time.
4. I am full of aches and pains.
6. I am a sick person.
20. I am a religious person.
22. I am a moral failure.
24. I am a morally weak person.

38. I have a lot of self-control.

40. I am a hateful person.

42. I am losing my mind.

56. I am an important person to my friends and family.

58. I am not loved by my family.

60. I feel that my family doesn't trust me.

74. I am popular with women.

76. I am mad at the whole world.

78. I am hard to be friendly with.

92. Once in a while I think of things too bad to talk about.

94. Sometimes, when I am not feeling well, I am cross.

7. I am neither too fat nor too thin.

9. I like my looks just the way they are.

11. I would like to change some parts of my body.

25. I am satisfied with my moral behavior.

27. I am satisfied with my relationship to God.

29. I ought to go to church more.

43. I am satisfied to be just what I am.

45. I am just as nice as I should be.

47. I despise myself.

61. I am satisfied with my family relationships.

63. I understand my family as well as I should.

65. I should trust my family more.

79. I am as sociable as I want to be.

81. I try to please others, but I don't overdo it.

83. I am no good at all from a social standpoint.

95. I do not like everyone I know.

97. Once in a while, I laugh at a dirty joke.

8. I am neither too tall nor too short.
10. I don't feel as well as I should.
12. I should have more sex appeal.
26. I am as religious as I want to be.
28. I wish I could be more trustworthy.
30. I shouldn't tell so many lies.
44. I am as smart as I want to be.
46. I am not the person I would like to be.
48. I wish I didn't give up as easily as I do.
62. I treat my parents as well as I should (Use past tense if parents are not living).
64. I am too sensitive to things my family say.
66. I should love my family more.
80. I am satisfied with the way I treat other people.
82. I should be more polite to others.
84. I ought to get along better with other people.
96. I gossip a little at times.
98. At times I feel like swearing.
13. I take good care of myself physically.
15. I try to be careful about my appearance.
17. I often act like I am "all thumbs".
31. I am true to my religion in my everyday life.
33. I try to change when I know I'm doing things that are wrong.
35. I sometimes do very bad things.
49. I can always take care of myself in any situation.
51. I take the blame for things without getting mad.
53. I do things without thinking about them first.

67. I try to play fair with my friends and family.

69. I take a real interest in my family.

71. I give in to my parents. (use past tense if parents are not living.)

85. I try to understand the other fellow's point of view.

87. I get along well with other people.

89. I do not forgive others easily.

99. I would rather win than lose in a game.

14. I feel good most of the time.

16. I do poorly in sports and games.

18. I am a poor sleeper.

32. I do what is right most of the time.

34. I sometimes use unfair means to get ahead.

36. I have trouble doing the things that are right.

50. I solve my problems quite easily.

52. I change my mind a lot.

54. I try to run away from my problems.

68. I do my share of work at home.

70. I quarrel with my family.

72. I do not act like my family thinks I should.

86. I see good points in all the people I meet.

88. I do not feel at ease with other people.

90. I find it hard to talk with strangers.

100. Once in a while I put off until tomorrow what I ought to do today.

Appendix G

FORM C

TENNESSEE SELF CONCEPT SCALE — ANSWER SHEET

ITEM NO.	PAGES 5 AND 6	ITEM NO.	PAGES 3 AND 4	ITEM NO.	PAGES 1 AND 2
13	1 2 3 4 5	7	1 2 3 4 5	1	1 2 3 **(4)** 5
14	1 2 3 4 5	8	1 2 3 4 5	2	1 2 3 4 5
15	1 2 3 4 5	9	1 2 3 4 5	3	1 2 3 4 5
16	1 2 3 4 5	10	1 2 3 4 5	4	1 2 3 4 5
17	1 2 3 4 5	11	1 2 3 4 5	5	1 2 3 4 5
18	1 2 3 4 5	12	1 2 3 4 5	6	1 2 3 4 5
31	1 2 3 4 5	25	1 2 3 4 5	19	1 2 3 4 5
32	1 2 3 4 5	26	1 2 3 4 5	20	1 2 3 4 5
33	1 2 3 4 5	27	1 2 3 4 5	21	1 2 3 4 5
34	1 2 3 4 5	28	1 2 3 4 5	22	1 2 3 4 5
35	1 2 3 4 5	29	1 2 3 4 5	23	1 2 3 4 5
36	1 2 3 4 5	30	1 2 3 4 5	24	1 2 3 4 5
49	1 2 3 4 5	43	1 2 3 4 5	37	1 2 3 4 5
50	1 2 3 4 5	44	1 2 3 4 5	38	1 2 3 4 5
51	1 2 3 4 5	45	1 2 3 4 5	39	1 2 3 4 5
52	1 2 3 4 5	46	1 2 3 4 5	40	1 2 3 4 5
53	1 2 3 4 5	47	1 2 3 4 5	41	1 2 3 4 5
54	1 2 3 4 5	48	1 2 3 4 5	42	1 2 3 4 5
67	1 2 3 4 5	61	1 2 3 4 5	55	1 2 3 4 5
68	1 2 3 4 5	62	1 2 3 4 5	56	1 2 3 4 5
69	1 2 3 4 5	63	1 2 3 4 5	57	1 2 3 4 5
70	1 2 3 4 5	64	1 2 3 4 5	58	1 2 3 4 5
71	1 2 3 4 5	65	1 2 3 4 5	59	1 2 3 4 5
72	1 2 3 4 5	66	1 2 3 4 5	60	1 2 3 4 5
85	1 2 3 4 5	79	1 2 3 4 5	73	1 2 3 4 5
86	1 2 3 4 5	80	1 2 3 4 5	74	1 2 3 4 5
87	1 2 3 4 5	81	1 2 3 4 5	75	1 2 3 4 5
88	1 2 3 4 5	82	1 2 3 4 5	76	1 2 3 4 5
89	1 2 3 4 5	83	1 2 3 4 5	77	1 2 3 4 5
90	1 2 3 4 5	84	1 2 3 4 5	78	1 2 3 4 5
99	1 2 3 4 5	95	1 2 3 4 5	91	1 2 3 4 5
100	1 2 3 4 5	96	1 2 3 4 5	92	1 2 3 4 5
		97	1 2 3 4 5	93	1 2 3 4 5
		98	1 2 3 4 5	94	1 2 3 4 5

NAME

SCHOOL GRADE SEX M F AGE DATE TIME STARTED TIME FINISHED

Appendix H

Jr.-Sr.

HSPQ

WHAT TO DO: You have a Booklet and an Answer Sheet. Write your name, age, etc., on the Answer Sheet where it tells you to.

The Booklet before you has in it questions about your interests and your likes and dislikes. Although you are to read the questions in this Booklet, you must put your answers on the Answer Sheet, making sure that the number of your answer matches the number of the question in the Booklet.

First, we shall give you two examples so that you will know exactly what to do. After each of the questions there are three answers. Read the following examples and fill in the right boxes where it says Example 1 and Example 2, on the Answer Sheet, below your name. Fill in the left-hand box if your answer choice is the "a" answer, the middle box if your choice is the "b" answer, and the right-hand box if you choose the "c" answer.

EXAMPLES:

1. Which would you rather do:
   a. visit a zoo,
   b. uncertain,
   c. go up in an airplane?

2. If you have a quarrel, do you make friends again quickly?
   a. yes, b. in between, c. no.

As you see from these examples, there are usually no right or wrong answers, although sometimes a correct answer is expected. Each person is different and you should say only what is true for you. You can always find one answer that suits you a little better than the others, so never leave a question

without marking one of the answers.

Inside you will find more questions like the ones above. When you are told to turn the page, begin with number 1 and go on until you finish all the questions. In answering them, please keep these four points in mind:

1. Answer the questions frankly and truthfully. There is no advantage in giving an untrue answer about yourself because you think it is the "right thing to say."

2. Answer the questions as quickly as you can. Don't spend too much time thinking about them. Give the first, natural answer that comes to you. Some questions may seem much like others, but no two are exactly alike so your answers will often be different too.

3. Use the middle answer only when it is absolutely impossible to decide on one of the other choices. In other choices. In other words, the "a" or the "c" answer should be used most of the time.

4. Don't skip any questions. Sometimes a statement may not seem to apply to you, but answer every question, somehow.

If there is anything you don't understand, please ask your questions now. If you have no question now, but later on come across a word you don't know, ask the examiner then.

DO NOT TURN PAGE UNTIL TOLD TO DO SO

1. Have you understood the instructions?

   a. yes, b. uncertain, c. no.

2. Do people often say you are warm and friendly?

   a. not really, b. in between, c. quite often.

3. If a new person comes into your class, do you at once try to get acquainted?

   a. yes, b. perhaps, c. no.

4. When someone praises you for something, do you have doubts, such as that they are fooling or have made a mistake?

   a. yes, b. sometimes, c. no.

5. Are there times when you have to struggle so much with your feelings that you don't feel in the mood to do anything?

   a. never, b. once in a while, c. very often.

6. Do people say that you daydream too much?

   a. yes, b. sometimes, c. no.

7. If you hurt yourself and pelple don't pay attention, do you:

   a. hide the fact you're hurt,

   b. in between,

   c. show how much it hurts?

8. If someone asked you to put a dollar in a charity sweepstake, with a chance to win $1000, would you:

   a. but a ticket,

   b. uncertain,

   c. keep your dollar?

9. Do you think there are too many nasty, nosy people in the world?

a. yes, b. uncertain, c. no.

10. Do you like to spend time:

a. cracking jokes,

b. uncertain,

c. in more serious talk about hobbies?

11. When there are some jobs that need special care and attention, do people come to you for help?

a. yes, for some jobs,

b. uncertain,

c. no, not at all.

12. Would you rather watch other people play a game than play the game yourself?

a. yes, b. in between, c. no.

13. Do you think you would like to become a famous racing car driver?

a. yes, very much,

b. perhaps,

c. no, definitely not.

14. When you are with your friends, who usually decides what to do?

a. one of them,

b. uncertain,

c. you.

15. Do you think it is likely that you will be rich or famous someday?

a. very likely, b. possibly, c. very unlikely.

16. If the teacher ignores you in class when you know the answer, do you:

    a. not get bothered,

    b. in between,

    c. feel you are badly treated?

17. When someone tells you a funny story, do you like to tell it to others later?

    a. yes, b. sometimes, c. no.

18. When you are talking with someone who seems to have trouble hearing what you say, do you:

    a. stop talking to them,

    b. uncertain,

    c. talk louder and slower?

19. Do you often change from one hobby to another?

    a. yes, b. in between, c. no.

20. When something you really had your heart set on doesn't turn out well, do you:

    a. accept the fact calmly,

    b. in between,

    c. feel that the world is all wrong?

21. Are there times when your attempts to concentrate on a problem keep being interrupted by stray thoughts?

    a. yes, often,

    b. sometimes,

    c. no, hardly ever.

22. During summer vacation, would you rather:

a. go to a camp and make new friends,

b. uncertain,

c. work by yourself on a hobby?

23. "combat"means the same as:

a. a fight, b. beat, c. war.

24. "Buy" is the opposite of:

a. lend, b. sell, c. give.

25. Can you keep calm in a contest for something you very much want to win?

a. yes, b. in between, c. no.

26. Are there times when other people get on your nerves so much you just have to go off by yourself for a while?

a. yes, often,

b. now and then,

c. no, almost never.

27. If someone is trying to be the teacher's pet, does it disturb you?

a. yes, b. in between, c. no.

28. When people interrupt what you are saying, do you:

a. give way and let them talk,

b. uncertain,

c. show you think they are rude, and ignore their attempt to interrupt?

29. If you had your choice, would you rather be elected in your class, as:

a. the hardest worker, b. uncertain, c. the best known, most popular.

30. Would you like to go swimming in a very daring swimsuit?

a. yes, if I could get away with it,

b. uncertain,

c. not at all.

31. When a school has rules and regulations, do you feel they should generally be obeyed?

a. yes, b. uncertain, c. no.

32. Would you say you "let yourself go," in fun, more then most of your friends?

a. yes, b. uncertain, c. no.

33. Are there times when you feel so nervous that almost anything will make you jump?

a. yes, quite often,

b. now and then,

c. no, almost never.

34. When you find another person in your seat, do you usually:

a. ask the person to get out,

b. uncertain,

c. take another seat and say nothing?

35. When you have to decide something really important, do you usually:

a. hesitate a lot,

b. in between,

c. decide easily?

36. Do you sometimes feel discouraged as if you've done things wrong though you don't know why?

a. yes, b. perhaps, c. no.

37. Are you usually the first or the last in your group to try a new fad?

a. the first, b. in between, c. the last, if ever.

38. Have you ever thought about writing novels or poetry?

a. yes, often, b. in between, c. no, never.

39. Do you think you are steady and dependable, or changeable and original?

a. steady and dependable,

b. uncertain,

c. changeable and original.

40. If you're hurrying to go out and your mother stops you to finish one of your usual chores, do you:

a. stop and do it,

b. in between,

c. object strongly and try to have it put off?

41. Are there times when you get so mad at someone that you really feel like hitting them?

a. yes, often,

b. now and then,

c. no, almost never.

42. When you are with your friends, do you leave it to them to do most of the talking?

a. yes, b. in between, c. no.

43. "Generous" is the opposite of:

a. thrifty, b. unkind, c. selfish.

44. "Hospital" is to "sick" as "restaurant" it to:

a. hungry, b. eat, c. dinner.

45. When you accidentally hurt someone's feelings, do you:

a. say you didn't mean it and then forget about it,

b. in between,

c. feel troubled about it?

46. When you go on vacation, do you usually:

a. have a definite plan for every day,

b. in between,

c. not bother with plans?

47. Do you feel nervous when you have to go somewhere you've never been before?

a. yes, b. sometimes, c. no.

48. Watching football or other games, do you:

a. stay calm and cool,

b. in between,

c. get about as excited as the people around you?

49. Do your friends think you play lots of tricks on people?

a. yes, b. not sure, c. no.

50. Do people usually say that you just love to win?

a. yes, b. in between, c. no.

51. Usually, do people thing you're a very careful worker?

a. yes, b. not sure, c. no.

52. In social clubs, do you get elected to office:

a. almost never,

b. once in a while,

c. very often?

53. When other people slow you down in something you're doing, do you think it is better to:

a. wait for them,

b. uncertain,

c. tell them to hurry?

54. If you were to plant a garden, would you rather plant:

a. mostly vegetables,

b. in between,

c. mostly flowers?

55. Do you think more people should do things your way?

a. yes, b. perhaps, c. no.

56. Do you have more days when you feel:

a. just fine, b. not sure, c. very sad?

57. Do people find fault with you even when you do things well?

a. yes, b. uncertain, c. no.

58. In trying to get something done, do you:

a. do it the usual way,

b. in between,

c. do it a new way?

59. When a teacher or a parent says you are wrong, do you

a. yes, usually, b. once in a while, c. no, almost never.

60. If you and your friends are starting a club, what should come first:

a. making rules,

b. not sure,

c. having some fun?

61. Have you ever thought that everyone around you seems to be in a plot against you?

a. yes, b. sometimes, c. no.

62. Would you like a job in which you meet a lot of people and have to try to persuade them to agree with you?

a. yes, b. perhaps, c. no.

63. "Island" is to "sea" as "lake" is to:

a. forest, b. land, c. river.

64. Susan is about as pretty as Ann but better looking than Jane. Ann is not as good looking as Nancy but prettier than Jane. Which girl is the best looking?

a. Ann, b. Susan, c. Nancy.

65. Are there many times when people have to calm you down and other times when they try to cheer you up?

a. yes, many times,

b. now and then,

c. no, almost never.

66. When you are caught in an embarassing position or situation, can you just make a joke of it and pass it off?

a. yes, usually, b. in between, c. no.

67. Do you get mad when your friends don't pay attention to your ideas?

a. yes, b. perhaps, c. no.

68. Would you prefer a radio program of:

a. sentimental popular music,

b. uncertain,

c. government leaders speaking on important national topics?

69. Are you known as a quiet person among your friends?

a. yes, b. uncertain, c. no.

70. Would you rather be a politician or a librarian?

a. a politician,

b. uncertain,

c. a librarian.

71. Do you think most social rules are useless and should be done away with?

a. yes, b. uncertain, c. no.

72. When someone new comes into your class, do they seem to pick you out as the person easiest to talk to?

a. yes, b. sometimes, c. no.

73. Do bugs and crawling things make you shiver?

a. yes, b. sometimes, c. no.

74. Do you sometimes get so nervous that you have to fidget and can't sit still?

a. almost never,

b. once in a while,

c. quite often.

75. Do some people say you are dull and not much fun at times?

a. yes, sometimes,

b. uncertain,

c. no, never.

76. When your team is in trouble in a game, do you:

a. try to yell louder than the other side,

b. in between,

c. feel miserable and want to leave?

77. Are there times when you feel quite tired just from worry or upsetting thoughts?

a. yes, many times,

b. not sure,

c. no, almost never.

78. Do you think camping would be more fun:

a. by yourself,

b. uncertain,

c. with a group?

79. Would you say that people who want to get along with others must learn to control their feelings?

a. yes, b. uncertain, c. no.

80. Do you decide whether you like or don't like someone:

a. when you first meet them,

b. uncertain,

c. after knowing them for a while?

81. Do you think your teachers really understand you?

a. yes, b. uncertain, c. no.

82. When people play jokes on you, do you get mad and upset?
a. often, b. sometimes, c. hardly ever.

83. "Often" means the same as:
a. always, b. seldom, c. frequently.

84. If all roops are trilps, and all red petos are trilps, which of the following is true:
a. all roops that are not red petos are trilps,
b. all roops are red petos,
c. all roops that are red petos are not trilps?

85. Do you think it's owrthwhile to try to do a good job when you can't get the right tools?
a. yes, b. in between, c. no.

86. Would you rather hear a band:
a. in a concert,
b. uncertain,
c. in a parade?

87. When you are reading a rather dull book, do you find that noises and other sounds take your mind off your reading?
a. yes, very much so,
b. sometimes,
c. no, rarely.

88. Do you have arguments with interfering people who try to upset your plans?
a. often, b. sometimes, c. very seldom.

89. When there's a wild party going on but you don't know the people, are you more likely to:
a. call the police, b. ignore it, c. try to join in?

90. When someone has made a mistake and messed something up, do you believe in:

a. showing you're angry,

b. in between,

c. smiling kindly and helping them start again?

91. When you read a schoolbook, do you often get so interested that you don't want to stop reading?

a. yes, b. in between, c. no.

92. Are you one of those people who:

a. couldn't tell a joke if your life depended on it,

b. in between,

c. always have lots of jokes and stories to tell?

93. When some work you've done is to be shown to important people, would you prefer:

a. to show it yourself,

b. not sure,

c. have someone else show it without your being there?

94. Do you enjoy watching automobile races?

a. yes, very much,

b. somewhat,

c. no, not at all.

95. Do you have better manners than most of your friends?

a. yes, b. uncertain, c. no.

96. If your friends aren't around, do you:

a. usually think of something to do alone,

b. uncertain,

c. have a hard time thinking of something to do?

97. Do you think most people would consider you to be moody at times?

a. yes, b. not sure, c. no.

98. Do people seem to get very interested in things you tell them?

a. yes, quite often,

b. now and then,

c. not very often.

99. Do you like people to tell you exactly how they want things done?

a. yes, b. uncertain, c. no.

100. When you wake up in the morning, do you find that you have tossed and turned so much that the whole bed is a mess?

a. often, b. sometimes, c. hardly ever.

101. Sometimes do you feel worried and tense for no real reason?

a. yes, b. perhaps, c. no.

102. Do you ever tell people about your hopes and dreams?

a. very rarely,

b. cometimes,

c. quite often.

103. When you are not in school and not working, would you rather spend your time:

a. with a group of friends,

b. in between,

c. by yourself?

104. Look at these five words: decline, refuse, oppose, deny, interpret. The word that does not belong with the others is:

a. oppose, b. interpret, c. decline.

105. If you raise your hand to answer a question and the teacher doesn't call on you, do you get upset?

a. yes, b. sometimes, c. no.

106. When you disagree with someone, do you usually:

a. keep quiet so they won't know,

b. in between,

c. argue it out with them?

107. When you can't find time to do everything you've promised to do, do you believe in first keeping the promises you made:

a. to other people,

b. to either,

c. to yourself?

108. Have you ever seriously thought it possible that you might become President, or some other nationally important man or woman?

a. often, b. once in a while, c. never.

109. When you are buying new clothes, do you:

a. buy what's most comfortable or practical even if they aren't in style,

b. in between,

c. buy clothes that are in style even if they aren't too comfortable or practical?

110. Are you easily led into doing things you know are wrong?

a. yes, b. sometimes, c. no.

111. Do you get annoyed if a teacher asks you to help with something the other students don't have to work on?

a. yes, b. perhaps, c. no.

112. Would you say that you have more real adventures than most people?

a. not really, probably fewer,

b. in between,

c. many more.

113. When there is a lively group discussion, do you usually join right in and talk as much as anyone?

a. yes, b. sometimes, c. no, almost never.

114. Do you think you would like to become a famous dress designer?

a. yes, very much,

b. uncertain,

c. no, definitely not.

115. If someone broke something of yours, would you:

a. forget it,

b. uncertain,

c. expect that person to pay for it?

116. Would you say that you are pretty "choosy" in picking your friends?

a. yes, b. uncertain, c. no.

117. When someone you know and trust doesn't keep a promise, do you:

a. forget it,

b. uncertain,

c. feel unhappy and never trust them again?

118. Would you rather do things with:

a. a few close friends,

b. in between,

c. a large group of friends?

119. When people look around your room at home, do they say that you keep it neat and tidy?

a. often, b. now and then, c. almost never.

120. Are there times when you do pretty wild things, not caring what other people say?

a. yes, b. sometimes, c. no.

121. Do you usually feel:

a. that time can be planned so everything gets done,

b. uncertain,

c. that you'll never have enought time to do everything?

122. If you were spending the summer at the seashore, which would you enjoy more:

a. collecting pretty seashells,

c. uncertain,

c. joining a club of surfboard riders?

123. When your group of friends needs someone to speak for them, is it usually you?

a. yes, b. sometimes, c. no.

124. Look at these five words: smart, dumb, brilliant, big, silly. The word that does not belong with the others is:
a. smart, b. big, c. dumb.

125. In games, can you keep on trying even when it's clear you can't win?
a. yes, b. perhaps, c. no.

126. If something goes wrong early in the morning, does that mean you're probably going to have a bad day?
a. yes, b. perhaps, c. no.

127. When you go on a picnic, would you rather:
a. be organized into a group game,
b. uncertain,
c. lead an exploring expedition?

128. Do you prefer to:
a. keep people guessing about your plans,
b. discuss plans with a few friends,
c. let anybody know who wants to?

129. Are you usually careful not to hurt or annoy other people?
a. yes, b. in between, c. no.

130. If you saw a stranger with a flat tire, would you help or let that person take care of it alone?
a. let the person take care of it alone,
b. not sure,
c. help.

131. When you start to do a job, does everyone know that you'll finish it and do it right?
a. yes, b. uncertain, c. no.

132. When you really need help, do you hesitate to ask a friend to give it?

a. yes, b. uncertain, c. no.

133. When you come into a new group, do you:

a. speak easily to everyone,

b. in between,

c. keep in the background for quite a while?

134. When you are buying records or listening to music on the radio, do you:

a. generally like soft, smooth music,

b. in between,

c. really like fast and loud music?

135. On a sunny afternoon, would you rather:

a. go to a ball game,

b. uncertain,

c. read under a shady tree?

136. Have you ever planned what you'd do if people left you completely free to do what you wanted?

a. yes, often, b. sometimes, c. no, never.

137. Does life seem to punish you by not giving you the things you want?

a. yes, b. in between, c. no.

138. If you had a few minutes to spare, would you rather spend it:

a. talking with a friend,

b. uncertain,

c. reading or studying?

139. Do people sometimes tease you for doing things just your own special way?

a. yes, but I ignore them,

b. sometimes,

c. no, not really.

140. When you were younger, did your parents say you were too quiet or too noisy?

a. quiet, b. in between, c. noisy.

141. Are you easily upset if you don't get something you want?

a. yes, b. sometimes, c. no.

142. Are you sure you have answered EVERY question?

a. yes, b. perhaps, c. no.

NAME _____ (FIRST / LAST) AGE _____ (YRS. / MTHS.) SEX _____ (G. OR B.) SCHOOL _____ TODAY'S DATE _____

INSTRUCTIONS: FILL IN COMPLETELY THE BOX BELOW WHICH IS NUMBERED THE SAME AS THAT YOU ARE ANSWERING IN THE TEST BOOKLET.

EXAMPLE 1: a b c ☐ ☐ ☐ EXAMPLE 2: a b c ☐ ☐ ☐

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APPENDIX J

Pre-Treatment t-tests Between the Experimental and Control Groups on the Tennessee Self-Concept Scale

(df = 82)

Variable	t-test
Self-Criticism	-1.58*
Total Positive	-0.57*
Physical Self	-1.62*
Moral-Ethical Self	-0.85*
Personal Self	-0.33*
Family Self	-0.95*
Social Self	-0.84*
Identity	-0.41*
Self-Satisfaction	-0.28*
Behavior	-0.79*

*p > .1

Pre-Treatment t-tests Between the Experimental and Control Groups on the High School Personality Questionnaire

(df = 82)

Variable	t-test
Factor A	1.38*
Factor B	1.06*
Factor C	1.13*
Factor D	1.19*
Factor E	1.42*
Factor F	1.01*
Factor G	1.66*
Factor H	1.02*
Factor I	1.42*
Factor J	1.12*
Factor O	1.43*
Factor Q_2	1.69*
Factor Q_3	1.05*
Factor Q_4	1.26*

*p $>$ .1

APPENDIX K

Comparison of t-tests Between Pre- and Post-Test Results of Control Group on the Tennessee Self-Concept Scale

(df = 38)

Variable	t-test	Level of Significance p
Self-Criticism	-2.31	<.05
Total Positive	-2.40	<.025
Physical Self	-2.23	<.05
Moral-Ethical Self	-1.44	>.1
Personal Self	-1.62	>.1
Family Self	-2.24	<.05
Social Self	-2.17	<.05
Identity	-2.39	<.025
Self-Satisfaction	-3.16	<.005
Behavior	-1.46	>.1

Comparison of t-tests Between Pre- and Post-Test Results of Control Group on the High School Personality Questionnaire

(df = 38)

Variable	t-test	Level of Significance p
Factor A	-2.07	< .05
Factor B	1.64	> .1
Factor C	-2.10	< .05
Factor D	-0.79	> .1
Factor E	-2.47	< .05
Factor F	-1.69	< .1
Factor G	-1.48	> .1
Factor H	-1.89	< .1
Factor I	3.16	< .005
Factor J	-1.15	< .1
Factor O	-0.80	> .1
Factor Q_2	-3.93	< .001
Factor Q_3	0.57	< .1
Factor Q_4	-0.47	> .1

APPENDIX L

Comparison of t-tests Between Pre- and Post-Test Results of Experimental Group on the Tennessee Self-Concept Scale

(df = 44)

Variable	t-test	Level of Significance p
Self-Criticism	-6.70	$<.0001$
Total Positive	-2.17	$<.005$
Physical Self	-8.03	$<.0001$
Moral-Ethical Self	-4.91	$<.0001$
Personal Self	-7.83	$<.0001$
Family Self	-4.68	$<.0001$
Socail Self	-3.03	$<.005$
Identity	-3.48	$<.001$
Self-Satisfaction	-3.75	$<.001$
Behavior	-9.14	$<.0001$

Comparison of t-tests Between Pre- and Post-Test Results of Experimental Group on the High School Personality Questionnaire

(df = 44)

Variable	t-test	Level of Significance p
Factor A	4.13	<.0001
Factor B	-1.31	>.1
Factor C	4.69	<.0001
Factor D	0.19	>.1
Factor E	-0.91	>.1
Factor F	2.39	<.05
Factor G	4.72	<.0001
Factor H	6.29	<.0001
Factor I	-2.33	<.05
Factor J	-2.90	<.01
Factor O	-0.20	>.1
Factor Q_2	2.07	<.05
Factor Q_3	2.91	<.01
Factor Q_4	-2.33	<.05

APPENDIX M

Post-Treatment Between the Experimental and Control Groups on the Tennessee Self-Concept Scale

(df = 82)

Variable	t-test	Level of Significance p
Self-Criticism	-5.50	<.0001
Total Positive	-2.74	<.01
Physical Self	-6.09	<.0001
Moral-Ethical Self	-4.34	<.0001
Personal Self	-5.67	<.0001
Family Self	-3.57	<.005
Social Self	-2.72	<.01
Identity	-2.77	<.01
Self-Satisfaction	-2.19	<.05
Behavior	-6.62	<.0001

Post-Treatment Between the Experimental and Control Groups on the High School Personality Questionnaire

(df = 82)

Variable	t-test	Level of Significance p
Factor A	-0.72	>.1
Factor B	1.93	<.1
Factor C	1.96	<.1
Factor D	1.70	<.1
Factor E	4.03	<.0001
Factor F	5.08	<.0001
Factor G	-1.67	= .1
Factor H	2.27	<.05
Factor I	-0.19	>.1
Factor J	-3.69	<.0001
Factor O	1.10	>.1
Factor Q_2	6.90	<.0001
Factor Q_3	2.43	<.05
Factor Q_4	-2.15	<.05

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