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ADOLESCENT SELF-CONCEPT AND
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Janiece L. Pompa

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John R Hurley
Major professor

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EFFECTS OF WILDERNESS STRESS ON ADOLESCENT SELF-CONCEPT AND SEX-ROLE ATTRIBUTES

By

Janiece L. Pompa

A THESIS

Submitted to
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ABSTRACT

EFFECTS OF WILDERNESS STRESS ON
ADOLESCENT SELF-CONCEPT AND
SEX-ROLE ATTRIBUTES

By

Janiece L. Pompa

This study measured changes in self-concept, locus of control, and sex-role characteristics in adolescent participants in a five-day wilderness stress experience. The experimental group consisted of 32 males and 32 females versus 25 male and 46 female control group members. All ranged between 14 and 18 years.

Relative to the control group, the experimental group showed significantly greater positive changes on many variables, including physical identity, physical satisfaction, physical behavior, moral-ethical identity, moral-ethical behavior, personal identity, personal behavior, family identity, and family behavior. Additionally, experimental males increased while experimental females decreased in self-criticism.

Sex-role attribute changes included gains in warmth for the experimental males and decreases on susceptibility to external influence, for the entire experimental group. The experimental group also showed significant positive change in their perceptions of present self level of maturity and competence, together with future self sociability.

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INTRODUCTION

This study was designed to measure changes in self-concept, locus of control, and sex-role characteristics in adolescents participating in a wilderness stress experience. Accordingly, a general review of the literature and introduction to the concepts of stress, self-concept and self-ideal, locus of control, and sex role development in adolescents is here presented, prior to discussing the literature on wilderness stress groups themselves.

Stress

The physiological and psychological benefits experienced by participants in wilderness survival programs are largely dependent upon the individual's willingness and ability to adapt to stress. The concept of adaptation to stress was first introduced into the biological and behavioral sciences by Selye in 1956. He felt that systematic stress manifested itself in a General Adaptation Syndrome (GAS), the first stage of which was termed an alarm reaction, where the organism's resistance was lowered in an initial shock phase. A counter-shock phase immediately followed, in which organismic defense mechanisms were mobilized and implemented. The second stage of resistance was the period in which maximum adaptation of the organism to the stressful event occurred. However, if defense mechanisms proved ineffective or the stressor persisted long enough,

a stage of exhaustion would be reached, in which the adaptive mechanisms would fail completely.

As Appley and Trumbull (1967) note, the term stress may be used in a stimulus sense to describe situations that are novel, intense, rapidly fluctuating, persistent, fatigue-producing and/or boredom-inducing. At the same time, stimulus deficit, stimuli leading to cognitive misperception, hallucinations, or conflicting responses may also be stressful.

In terms of behavioral response, any behavior which deviates momentarily or over time from the individual's normal behavior, or that of an appropriate reference group, has been used after the fact to define the existence of stress. This includes responses with a motor component, such as tremors, stuttering, loss of sphincter control, or performance changes such as increased reaction time, increased number of errors, erratic performance, poor coordination, and fatigue.

Finally, the existence of a stress state within the organism has been inferred from physiological indices correlated with anxiety, such as heart rate, galvanic skin response, change in blood eosinophils, and so on.

Thus, stress is probably best defined as a "state of the organism under extenuating circumstances rather than an event in the environment" (Appley & Trumbull, p. 11), which may be produced by a variety of environmental conditions, realizing that individuals differ in their perceptions of the enviornment and in their perception of events as threatening and, therefore, stressful.

Torrance (1965) offers a behaviorally-oriented definition of a stressful stimulus as "any threat to a fundamental need...any stimulus or force that changes an organism in some significant way for better or for worse" (p. 19). Selye's research indicated that although stress always depletes our reserves of "deep adaptation energy" through irreversible chemical changes, its psychological effects are not always negative. Stress may be therapeutic or curative, as in the case of shock therapy or occupational therapy, in which the biochemical reactions precipitated by the stressful event can help ameliorate the psychological disorder. In the same vein, Torrance (1965) noted that stress may prompt individuals to rise to new heights of performance or achievement, with creativity and inventive powers that have been stimulated through the process of coping with stress. Furthermore, the success of problem-solving endeavors in stressful situations may give the individual new energy for continued adaptation. The duration and intensity of the stress also seems to be a determinant of its effect upon the individual. A number of studies (Harris et al., 1956; Miller, 1953) indicate that mild stress tends to result in improved performance, increased activity, and more learning, while extremely intense stress results in deterioration of performance and breakdown.

Self-Concept and Self-Ideal

The self-concept is a hypothetical construct consisting of the values, attitudes, and beliefs a person holds about himself on several dimensions (McDowell, 1976). Three major components of the self-concept, all of which are affected by heredity, maturation and

interaction with the environment and others, are the self as seen by self, the self as thought to be seen by others, and the self as one would like to be, or the ideal self.

The self-concept of the individual takes form in early childhood, as soon as the child is old enough to realize that his actions are liable to judgment by significant others as "good" and worthy of praise, or "bad" and worthy of blame. The child, having no innate value system and being unable to observe himself objectively and compare himself with his peers, must rely on the reactions of others to him in order to evaluate his own worth.

As the child grows older, the nature of his interactions with others may change as a function of maturation, as well as his own and others' evaluation of his performance in life situations. However, by adolescence the self-concept of the individual has stabilized into "a relatively consistent and enduring framework of self-regarding attitudes" (Bourne & Ekstrand, 1976, p. 435). Engel (1959), in her study of 107 male and female adolescents, found relative stability of self-concept over a two-year period, though those who showed negative self-concepts on the first testing showed significantly less stable self-concept than adolescents who tested positively on self-concept at the first testing. Carlson (1965), in her study of 49 adolescents over a six-year period, confirmed Engel's results, despite the differences in methodology. By all indications, self-concept can be changed through learning and interpersonal interaction, but is a relatively stable dimension of personality by adolescence, regardless of sex.

Although there do not appear to be sex differences in the stability of the self-concept during adolescence, evidence has suggested that there are differences in the quality of the self-concept of the adolescent girl as compared to the adolescent boy. Rosenberg and Simmons (1975), in their empirical study of almost two thousand children and adolescents in grades 3 through 12, found that adolescent girls were considerably more self-conscious than boys, lower in self-esteem, more vulnerable to criticism, and more concerned with promoting interpersonal harmony. It appeared that adolescent boys stressed achievement and competence more than girls, who were considerably more "people-oriented". The experimenters hypothesized that sex differences in the quality of the adolescent self-concept reflected his/her conformity to societal definitions of sex role, which seems likely in view of the fact that most adolescents are locked into a struggle for identity.

In fact, it has been suggested that the major task of the adolescent is to forge his own identity, which necessitates a turning inward to assess himself and his weaknesses, strengths, needs, and role in society (Hansen & Maynard, 1973). According to Rosenberg (1965), the adolescent experiences heightened awareness of himself for three reasons. First, adolescence is a time of decision-making, especially with regard to selecting a career or occupation. Second, rapid and drastic bodily changes occur with the onset of puberty. Third, the adolescent experiences much status ambiguity, in that he is sometimes expected to act like a child, and sometimes like an adult. Rosenberg (1965) states, "the adolescent is expected to act as an adult but is not afforded any adult privileges" (p. 34).

As the adolescent assesses those perceptions, beliefs, feelings, and values which he holds about himself, he evaluates himself, in part, by comparing them to those qualities which define the person he would like to be, or his ideal self. In studying the growth of the ideal self through childhood and adolescence, Havinghurst (1946) and his colleagues found a developmental trend in the formation of the ideal self for both girls and boys. In early childhood, the child identifies with parents or parental figures, esteeming their qualities as desirable and introjecting them as ideals. About the age of eight, parents begin to fade as important models for the child, and during middle childhood and early adolescence "glamorous" people, such as movie stars, rock musicians and sports figures become the child's ideals, as well as young adults they know personally and/or imaginary individuals.

The difference between one's perceived self and one's ideal self is also important in studies of self-esteem. The larger the discrepancy, the more dissatisfied and critical the person is of himself. As might be expected, existing research shows that highly self-critical children and adults are more anxious, insecure, and possibly more cynical and depressed than self-accepting persons (McCandless, 1961).

Locus of Control

According to social learning theory, behavior is determined by expectancy, reinforcement value, and the psychological situation. A person who believes that environmental reinforcers are determined by his own behavior rather than luck, fate, or the actions of powerful

others, is said to show internal locus of control. Studies by Lefcourt (1966) and Phares (1973) suggest that individuals manifesting high internal locus of control appear to take more initiative and responsibility in performance situations, seek and use information more efficiently, are more aware of their environments, and may even be more active and successful in school than those manifesting external locus of control. It has also been suggested that individuals who have been able to alter their environment in a desired direction through instrumental task performance develop feelings of competence and mastery over their environment. These suppositions are consistent with social learning theory, which states that performance accomplishments are the most dependable method by which to heighten efficacy expectations, or the belief that one can accomplish a behavior required to produce a desired outcome. It is known that high perceived self-efficacy, or high internal locus of control in a particular area, tends to generalize to related areas, helping to reduce fears and defensive behavior, stimulate coping behavior, and encourage persistence in overcoming obstacles.

Recent research on locus of control as a function of perceived efficacy through successful task results have supported theoretical formulations. Levens (1968) found that welfare mothers could decrease their sense of powerlessness by participating in an organization that encouraged political activism. Gottesfeld and Dozier (1966), in their study of individuals of low socio-economic status in a New York City ghetto, found that those who were trained as community organizers or "stimulators" became more internal on

Rotter's locus of control scale, with those who had had the most experience showing the most change. With regard to this study, Lefcourt (1976) commented, "People change in their customary causal attributions if they encounter experiences that meaningfully alter the contingencies between their acts and perceived outcomes"(p. 126).

Sex Roles and Androgyny

Research has suggested that from the age of two, boys and girls show striking differences in their interests and attitudes. Whether innate or learned, these differences are strengthened by parents and society through a system of subtle rewards and punishments. The young female child is encouraged to imitate the mother as a role model, and the boy is encouraged to imitate the father as his role model (Goodstein & Sargent, 1977). Besides the influence of family and significant others on the child's sex role development, the American educational system promotes differential socialization of the sexes through textbooks, curriculum, guidance counseling, personnel policies, and extracurricular activities which heavily reinforce societal sex role demands for girls and boys (Levy, 1972). Briefly, boys are expected to be independent, intellectually competent, aggressive, and "tough", or emotionally non-expressive, while girls are expected to be passive, docile, dependent, and conforming.

Such pressure to behave in accordance with one's sex role may be damaging to both sexes. High femininity in females has consistently been correlated with high anxiety, low self-esteem, and low social acceptance (Cosentine & Heilbrun, 1964; Gall, 1969;

Gray, 1957; Sears, 1970; Webb, 1963). It may be that females in general suffer lower self-esteem than males, even in childhood. Smith (1939) conducted a study in which 100 boys and 100 girls from 8 to 15 years of age were asked to rate their own and the opposite sex on an array of both desirable and undesirable traits. He found that as boys increased in age, they had a progressively poorer relative opinion of the girls and the girls had a progressively better relative opinion of the boys. Conversely, as they grew older boys had a progressively better opinion of themselves and girls had a progressively poorer opinion of themselves. Furthermore, although boys and girls thought better of their own sex than of the other, by the age of 14 girls had come to think almost as well of the boys as they thought of themselves. Accordingly, Sears (1970) noted that femininity in either sex was clearly associated with poor self-concept, aggression anxiety, high self-aggression, high prosocial and low antisocial aggression. In his opinion, "these relations are probably based on a common element of fearfulness and insecurity" (p. 278).

In adolescence, although high masculinity in males has been correlated with better psychological adjustment (Mussen, 1961), in adulthood it has been correlated with high anxiety, high neuroticism, and low self-acceptance (Harford, Willis & Deabler, 1967; Mussen, 1962). It has also been found that men high in masculinity were "aloof, tough, practical, unpretentious, and suspicious...emotionally dissatisfied, prone to guilt and anxiety..." (Harford, Willis & Deabler, 1967).

Consistent correlations have also been found between greater intellectual development and cross-sex typing, or masculinity in girls and femininity in boys. More sex-typed boys and girls have been found to have lower overall intelligence, less spatial ability, and less creativity (Maccoby, 1966).

The problem of sex-role identification is of special concern to the adolescent. The bodily changes that herald the arrival of puberty and sexual maturity force the adolescent to new efforts to fill his/her expected sex role on penalty of social ostracism. As Forisha (1978) notes, the emphasis on boys' achievement continues into adolescence, with added emphasis on success in athletics and sexual experience, while girls begin to be pressured to become "feminine". Consequently, the framework of teen-age society becomes fairly rigid and follows typical sex-role stereotypes: the boy must ask the girl for a date, although perhaps she has flirted, begged, and otherwise inveigled him into it. As Rodgers (1967) observes, "it is in the teens that the polarity of sex roles reaches its zenith" (p. 337).

In discussing the attributes of masculinity and femininity, Parsons and Bales (1955) observed that masculinity has been associated with an "instrumental" orientation, or a cognitive focus on accomplishing an assigned task, while femininity has been associated with an "expressive" orientation, or an affective concern with the well-being of others and the harmony of the group. Similarly, Bakan (1966) suggested that masculinity is associated with an "agentic" orientation, or an individual concern for oneself, while femininity is

associated with a "communal" orientation, or a concern with the relationship of the self to others.

Bem (1975) hypothesized that the integration of masculine and feminine traits within the individual person, or psychological androgyny, may be more socially desirable than the polarization of sex-role identification. In contrast to masculinity and femininity, androgyny does not require total conformity to the characteristics of the male or female sex role. Wesley and Wesley (1977) state that "both sexes maintain their typical traits, but incorporate also the traits of the opposite sex into their behavior repertoires" (p. 24). Thus, according to the situation, the androgynous individual is free to respond with either an instrumental, masculine response, or a feminine, expressive response.

Some recent studies have found that persons with a more androgynous view of themselves show greater maturity in their moral judgments (Block, 1973) and a higher level of self-esteem (Spence et al., 1975). In her review of the literature, Forisha (1978) noted that in groups of persons termed "androgynous", both well-adjusted and maladjusted individuals were found, and concluded that "androgyny is necessary for fully human living but is not sufficient in itself" (p. 97).

REVIEW OF LITERATURE

Rationale

There are numerous types of "wilderness survival" or "wilderness adventure" programs, most of which have several elements in common: a wilderness setting, a written or implied philosophy emphasizing the desirability of understanding one's weaknesses and strengths and one's relationship to nature, and the use of controlled stress situations to promote positive changes in the individual and his social functioning. The latter is accomplished by the setting of mentally challenging and/or physically strenuous tasks, the confrontation of fear, the completion of the "seemingly impossible" task, and the positive psychological changes generated within the individual who completes the task successfully (Noll & Wilpers, 1974). To facilitate improved social functioning, including the development of cooperative efforts, group decision-making abilities, and inter-dependence, small groups are often employed as the primary social units. Programs meeting the above criteria will hereafter be referred to as "wilderness stress" programs.

The Therapeutic Recreation Journal (1974), in an editorial article describing wilderness stress programs, extolled the positive potential of wilderness training in remedial and preventive mental health. In fact, it has been postulated that wilderness

challenge tends to evoke healthier coping behavior, rather than more psychopathological defensive behavior. Lazarus (1966) states that defensive behavior is most demanded in settings where social environment is dominant over physical environment, and threat can be dealt with through defense mechanisms such as repression, denial, and so on. However, since wilderness challenges usually involve difficult but possible tasks of a concrete nature, coping behavior is stimulated, since withdrawal and retreat are usually not feasible. Unless the defensive process is successful in eliminating the threat, the physiological stress reaction will persist, creating cognitive dissonance. With regard to coping behavior, Lazarus (1966) stated, "one deals directly with a threatening or stressful stimulus...the source of the threat is readily identifiable" (p. 174).

The presentation of conditioned aversive stimuli in intense forms without negative consequences, or "flooding", may account for the elimination of much defensive behavior and the acquisition of coping skills in the wilderness stress situation, especially since the opportunity for escape is minimal. Peer pressure and instructor support for the individual rappelling down a 90-foot cliff for the first time make it difficult to avoid the task, and coping behavior, of the performance of the task, is elicited. As defenses break down and challenges are met rather than avoided, the individual who conquers his/her fear and overcomes mental or physical obstacles through the help of fellow participants and through his/her own determination experiences a surge of self-confidence and positive feelings about the self. As Bernstein (1972) notes, "the ultimate positive reinforcement is mastery or control over one's environment" (p. 161).

Most wilderness stress programs are administered through private or educational institutions, and are generally geared to the physically able adolescent or young adult. The half-dozen Outward Bound schools around the U.S. are perhaps the best well-known. The McLean Hospital of Belmont, Massachusetts sponsors Project INSITE (In Nature, Self-Improvement through Effort), utilizing a combination of backpacking, cross-country skiing, and rock climbing to encourage change through successful outdoor achievement. The Oregon State Hospital offers a program of rock climbing, white-water boating and survival-ecology activities for selected in-patients.

There is evidence that wilderness stress programs may be especially effective with adolescent and young adult participants. The wilderness stress experience lifts the adolescent individual from his/her everyday social milieu, and places him/her in a wilderness setting where he or she can test his/her own newly learned adaptive and coping skills against nature. The student learns that he or she can make decisions, exert personal power and determination, and enjoy the support of the other adolescents within the small groups who are facing the same challenges.

Self-Concept and Wilderness Stress Groups

Although informal follow-up studies and verbal feedback regarding participants in wilderness stress programs indicate a considerable improvement in many areas of functioning among participants, especially self-concept and self-confidence, few empirical studies have measured the psychological effects of

wilderness stress programs. Inasmuch as self-concept is an integral part of psychological functioning, with implications as a prerequisite for self-initiated behavior change and movement in therapy, such studies can help determine the usefulness of wilderness stress groups as a therapeutic modality.

The great majority of empirical studies of self-concept changes in wilderness stress group participants have been performed on Outward Bound groups in the United States and Great Britain. Outward Bound students perform rigorous outdoor activities designed to push them to their physical and psychological limits of endurance. It is believed that by meeting and overcoming challenges, the individual student will develop self-respect and self-confidence.

Perhaps the earliest well-known study is that of Clifford and Clifford (1967), who studied 36 boys aged 16 to 21 who had attended an Outward Bound school in Colorado for one month during the summer, during which the students had rappelled, learned rock climbing, mountain rescue, lived alone for several days, and ran a marathon of several miles. From diverse ethnic backgrounds, socioeconomic groups, and educational levels, these boys rated themselves on four measures of self-concept: the Self-Rating, Self-Description, and Ideal Description Scales (based on Dickey, 1958, 1961), and the Word Meaning Test (based on Osgood, 1957 and Clifford, 1965). The Self-Rating Scale consists of 15 self-descriptive statements rated on a 7-point scale in terms of how frequently they apply to the respondent. The Self-Description Scale is comprised of 34 adjectives or phrases, each rated on a 7-point scale as to

whether or not they describe the respondent. The Ideal Description Scale is similar to the Self-Description, but is rated in terms of the respondent's ideal self. The Word Meaning Test is a semantic differential consisting of 15 concepts rated on a 9-point scale from which three factor scores were obtained: an evaluative dimension, potency, and activity. In addition, a Counselor Rating scale, or a Self-Description scale on which the counselors rated the boys, was utilized. Control for age and predisposition of boys was achieved by dividing the group into two levels at the median age and two levels above and below the median score of their initial self-ratings, thus forming a group of "younger" and "older" boys and a group of those who had scored "poorer" or "better" on the self-ratings. After the performance of "appropriate statistical tests", several findings ($p < .01$) were noted:

1) Boys with "poorer" initial self-ratings made greater gains than boys with "better" initial self-ratings, though both groups scored significantly higher from the pre- to post-test on all measures except Ideal Description. The two groups also maintained the same relative ratings across all measures from pre- to post-test.

2) No significant differences between the "older" and "younger" groups were found relative to pre-post-test changes, though both groups made statistically significant positive changes across all tests except Ideal Description.

3) The counselors' ratings of the boys' behavior were consistent with their self-reports across all measures, and showed a significant difference between "poorer" and "better" self-rating groups.

4) There was little change in the boys' ideal self-ratings over time; their pre- and post-test ideal self profiles were very similar and correlated with each other at the .77 level.

At the same Outward Bound school, using a different population, Koepke (1973) studied 11 female and 33 male participants (median CA = 19) and found significant positive, socially desirable pre- to post-test changes on 16 of 23 scales of the Gough Adjective Check List.

Fletcher (1970), in a follow-up of Outward Bound schools in Great Britain involving 3000 students, found that 86% of those who completed Outward Bound training felt themselves to be more self-confident than before, with 67% feeling that these changes would last forever. These students also mentioned tolerance, maturity, and patience as qualities acquired or strengthened as a result of their experience. Parents, relatives, friends or employers rated these students as "more self-confident, show[ing] more initiative, less selfish, and more tolerant of others" (p. 15).

In 1969, Wetmore studied 291 boys between the ages of 15 and 19 who participated in an Outward Bound sea school off the coast of Maine to examine any changes in self-concept that might have occurred. The school was, in essence, a highly structured survival experience, involving 26 days of rock climbing, swimming, first aid, rescue, ecology, and sailing. The subjects were administered the Tennessee Self-Concept Scale (TSCS) on the first and last days of the experience, as well as six months afterwards. The instructors also completed a Behavior Rating Scale for each participant. On the

TSCS, Wetmore found that the students showed positive, statistically significant ($p < .05$) changes from pre- to post-test on 9 of the 10 subscales. The scales identity, behavior, physical self, moral-ethical self, personal self, family self, social self, total positive score, and self-criticism all showed increases, with self-satisfaction the only scale not showing a significant positive change. At follow-up six months later, significant increases from the post-test to follow-up were noted on three scales: moral-ethical self, personal self, and self-satisfaction.

Furthermore, significant correspondence between the boys' scores on the TSCS and their ratings by the instructors on the Behavior Rating Scale was also found. A statistically significant, positive relationship between the boys' scores on the Behavior Rating Scale and 7 of the 10 self-concept categories on the TSCS was also noted. 124 of 272 students (45%) completed critiques regarding the influence of the Outward Bound experience in their lives, and 95% of these respondents reported favorable effects, with the other 5% reporting unfavorable effects. Pre- to post-test changes were investigated in terms of their possible relationship to secondary variables such as race, age, socio-economic status, and educational level were assessed, but no statistically significant relationships involving these variables were found. These results suggested that the survival experience alone seemed to be responsible for self-concept gains, which were maintained six months later at follow-up.

Nye (1975) also used the TSCS to measure self-concept change in students participating in a 24-day course at the North Carolina Outward Bound school in Morgantown, in the summer of 1974. The activities were typical of the Outward Bound curriculum - initiative tests, a ropes course, climbing, rappelling, white-water canoeing, expeditioning, and a three-day solo experience. Eighty-four students (38 males, 46 females) between the ages of 16 and 23 were pre-tested on the day of their arrival at the school, 82 students (38 males, 44 females) were post-tested the day before leaving, and 58 students (23 males, 35 females) returned the follow-up questionnaires sent to them three months after the termination of the experience. A control group consisting of Pennsylvania high school students attending elective summer school was also tested. Seventy-eight students were pre-tested (50 males, 28 females), 72 students were post-tested (44 males, 28 females) and 50 students (30 males, 20 females) returned the follow-up questionnaires, administered within a similar time period as that allotted to the experimental group.

An analysis of covariance was performed on 10 of the sub-scales of the TSCS, removing the initial differences between the two groups on the pre-test, then contrasting the scores between the groups on the post-test. It was found that experimental group members as a whole scored significantly higher ($p < .05$) from pre-test to post-test on nine scales: identity, self-satisfaction, behavior, physical self, moral-ethical self, personal self, family self, social self, and total positive score. Male experimental

group members showed significant growth on all the aforementioned scales, while female experimental group members scored significantly higher from pre-test to post-test on all the above scales except physical self.

On the follow-up three months later, the group as a whole still showed significantly higher scores (as compared to pre-test) on all of the nine scales listed above. However, when the results were broken down by sex, a trend counter to that shown on the post-test was noted: females scored significantly higher at follow-up than pre-test on all nine scales, while males scored significantly higher on only six scales: identity, behavior, family self, social self, moral-ethical self, and physical self.

Though Outward Bound students show consistent personality changes in a positive direction following their experiences, wilderness stress programs in other settings also show similar results. Stimpson and Pedersen (1970) studied eight underachieving male high school students on a three-week survival trip involving hiking endurance, rappelling, mountain rescue, a solo experience, and a marathon race. The Self and Others Rating Scale (Pedersen, 1969), a semantic differential composed of 25 bipolar adjectives separated by an 8-point scale measuring changes along the dimensions of actual self, ideal self, other people in general, own mother, own father, best male friend, and best female friend, was used to test the students two weeks before and immediately after the trip. Scale scores on all seven variables moved in a more favorable direction from pre- to post-test, with statistically significant changes on

the variables "actual self", "own mother", and "own father", indicating higher self-evaluation and evaluation of parents.

Brigham Young University's Department of Youth Leadership sponsors a 28-day wilderness survival program in the desert and mountain environment of southern Utah, the objectives of which include "a) the development of self-confidence, b) strengthening of interpersonal relationships, c) character development, d) development of a workable system of personal values, e) spiritual development, and f) development of outdoor survival skills...by providing difficult physical and mental challenges which can be met successfully without failure" (Thorstenson, 1972, p. 1). As a part of their survival research program, the TSCS was administered to approximately 100 students before and after these survival trips. These students represented five different trips held during the years 1971-73. Although no control groups were employed, statistically significant positive gains were consistently found on eight scales of the TSCS: identity, self-satisfaction, behavior, physical self, moral-ethical self, social self, family self, and total positive. One scale, self-criticism,consistently yielded decrements, although these losses were not statistically significant. In a one-year follow-up of one of these groups, Heaps and Thorstenson (1974) found the aforementioned gains to be even more pronounced, except on the social self and self-criticism scales. They concluded that the program tested yielded immediate and long-term social and psychological benefits.

One group of participants in this 29-day survival program was designated a "traditional" wilderness stress group and was contrasted with a "pilot" wilderness group in Nielsen's (1975) study in which she compared the two types of programs with regard to the participants' level of self-actualization, as measured by the Personal Orientation Inventory (POI) and the TSCS. The pilot program involved a one-month wilderness survival/interpersonal lab in which interpersonal skills and sociological concepts were learned, which was followed by a one-month exercise in developing these skills through sociological field experiences in the broader community.

Using the paired t-test method, Nielsen found that the 27 subjects in the traditional group (10 males, 17 females) made significant ($p < .05$) gains in the areas of self-satisfaction, behavior, physical self, moral-ethical self, personal self, family self, social self, and total positive score. The distribution score, which changed significantly in a positive direction, indicated that they were more certain in their perception of themselves. The 28 subjects in the pilot group (12 males, 16 females) showed all of the above changes, with the exception of social self. In addition, they showed significant gains on the identity scale. In commenting on both groups, Nielsen stated, "While growth in terms of perception of behavior of level of functioning was significant, it was not as pronounced [in the pilot group] as in the [traditional] group" (p. 64).

The influence of sex as a moderator variable was also assessed, and it was found that females over both groups showed significant changes in a positive direction on 12 scales of the Tennessee, while males showed significant changes on the self-satisfaction and personal self dimensions only. Pilot group males showed no statistically significant changes, while pilot group females showed statistically significant, positive changes on all scales but self-criticism. Traditional group males changed significantly in a positive direction on self-satisfaction, behavior, moral-ethical self, personal self, and social self, while traditional group females changed positively and significantly on all TSCS scales. Thus, females in both groups seemed to show greater personal growth as a result of their wilderness experience, as compared to the males.

More recently, Risk (1976) conducted an experimental wilderness survival experience on an island off the coast of western Michigan, during which six male and five female participants were required to obtain all food, water, and shelter from the land for a period of twelve days. Students were permitted to bring only basic outdoor clothing and a small survival kit. Two separate sets of pre-tests and post-tests, including the TSCS, were administered at various times preceding and following the experience, with significant pre-post-test changes defined as those exhibiting a two-tailed probability of .05 or less. Risk found that the total positive, self-satisfaction, physical self, moral-ethical self, defensive positive, and general maladjustment scales changed significantly in the direction of greater mental health.

Not all such studies have yielded statistically significant positive findings. For example, Kaplan (1974) reported a study of an Outdoor Challenge Program in Marquette, Michigan, in which 10 boys aged 15 to 17 spent two weeks learning survival skills in Michigan's Upper Peninsula. A control group of 25 boys was matched to the experimental group for age, sex, and geographical location, and both groups were administered the Rosenberg scale of self-esteem. The Outdoor Challenge group was found to have scored significantly higher than the control group ($p < .02$) on the pre-test self-esteem measure, but statistically reliable self-esteem changes were not found to result from the wilderness experience. It was hypothesized that the high initial self-esteem level recorded by the Outdoor Challenge group left them little room to change, and such a "ceiling effect" was also observed in members of the control group who scored quite high on the pre-test measure of self-esteem. However, in the experimenters' opinion, the students gained "a greater concern for people, more realistic outlook of one's strengths and weaknesses, greater self-sufficiency in the use of one's time and talents, and a rather positive view of oneself" (Kaplan, 1974, p. 114).

Locus of Control and Wilderness Stress Groups

The effects of wilderness experience on internal locus of control was assessed by Nowicki & Barnes (1975). Though not properly a wilderness stress group, changes in internal locus of control in 261 male inner-city children and adolescents attending a structured camp were examined. The modal age of the group was 13,

and nearly all (95%) of the participants were Black. The campers attended one of seven weekly sessions, with a small group of selected campers (N = 27) being invited back for an additional week-long session. Campcraft, fishing, swimming, arts and crafts, canoeing, conservation classes, and nature study were the campers' main activities, with the objective of the program to have the participants work together in a highly structured environment to achieve mutual goals. Contingent reinforcement for good and poor performance was offered as an incentive.

The Nowicki-Strickland (1971) Internal-External Locus of Control Scale, 40 yes-no questions yielding a measure of generalized expectancy of reinforcement, was administered to the campers at the beginning and end of each week. All groups except one showed increased internality from pre- to post-test, with 5 of the 8 groups showing a statistically significant increase. As Lefcourt (1972) notes, this experiment contained eight separate replications of the basic experiment, producing an overall difference of t = 5.93, df = 260, $p < .005$.

In addition, children who returned for a second week of camp showed even greater change towards internality. These participants showed a beginning mean of 16.23 on the Nowicki-Strickland scale, which decreased to 14.07 at the end of the first week and 12.65 at the end of the second week, with decreasing scores indicating increased internality. These overall changes produced a highly significant effect (F = 21.56, df = 3.75, $p < .001$).

Eastman (1973) also conducted a pilot program in "wilderness living" at Guilderland Central School, New York, to measure changes in locus of control in boys who were taught to administer to their own needs in an outdoor environment. The experimenters postulated that the powerful influence of American society inhibits children's efforts to establish a personal identity and to exert control over their own lives and destiny. By removing children from their social setting and requiring them to make and live by personal decisions regarding their own needs and wants, it was hoped that these children would change towards greater internal locus of control.

Forty-three boys attending Guilderland who volunteered for "an extended wilderness living experience" were randomly divided into four equal groups. Group 1 served as a no-treatment control group; Group 2 received two weeks of classroom instruction in outdoor living skills; and Group 3 received two weeks of classroom instruction followed by two weeks of daily outdoor excursions, such as fishing, hiking, biking, and so on. Group 4, the main experimental group, received two weeks of classroom instruction in wilderness survival skills, followed by two weeks of wilderness living, including hiking 120 miles, swimming, fishing, and reading. Instructors required that the students choose and purchase their own equipment and food, as well as learn first aid and orienteering with minimal support from others. Decisions affecting the group as a whole were usually discussed and decided by the students as a body. All participants were required to keep a daily journal of

observations, impressions, and feelings as part of the course requirements.

Rotter's Internal-External Locus of Control Scale was administered to all four groups before and after their experiences, then analyzed through a one-way analysis of variance. No significant changes in any group in either direction at the .05 level were found. However, an analysis of the journals of the Group 4 students showing the most internality "revealed six critical requirements for internal locus of control orientation", and the experimenters concluded that "the students did gain a feeling of control over events in their experience" (p. 3).

STATEMENT OF PROBLEM

This study was conducted in an attempt to refine and expand the body of knowledge about the psychological effects of wilderness stress groups on adolescents in the areas of self-concept, locus of control, and sex-role characteristics. There have been a limited number of prior studies in this field (chiefly in the area of self-esteem), which have yielded inconsistent results. Thus, a primary purpose of this study was to clarify previous reported results through the use of a control group more closely matched to the experimental group on several important demographic features and the use of measures tapping more specific components of self-esteem. Often, control groups are not employed in the study of wilderness stress groups, or are poorly matched to the experimental group in terms of age, socio-economic background, racial or religious composition, ubran or rural living situation, education, and other variables. The present study employed a control group aged 16 to 18, closely matched in age to the experimental group, aged 14 to 18. Most of the students in both groups were 15 to 17 years of age, and all were high school students. In addition, all students in both groups were Caucasian, and most were members of the Church of Jesus Christ of Latter-Day Saints (LDS). The majority of the students in both groups were of middle-class background, residing in a small city near a large private university of approximately 25,000 students.

Like most of the research in this field, the present study used the Tennessee Self-Concept Scale (TSCS) to measure self-esteem changes after wilderness living. However, instead of computing eight global scales by totaling the items in the three rows (identity, self-satisfaction, behavior) and five columns (physical self, moral-ethical self, personal self, family self, social self) in the 3 x 5 matrix upon which this measure is based, each of the scores on the items in the 15 cells were added to create 15 new variables yielding more specific information on the nature of self-concept changes in the experimental group. For example, the same six items used to compute both the moral (column variable) and behavior (row variable) scales would be summed to create a new dimension, "moral behavior", thus breaking down each of the three row variables into five components and each of the five column variables into three components. An additional short global measure of self-esteem, the Rosenberg Self-Esteem Scale, was employed in order to validate expected self-concept changes on the TSCS.

This study also attempted to measure changes in adolescents as a result of wilderness stress in the areas of locus of control, perception of present, future and ideal self, and sex-role characteristics. Although studies measuring changes in locus of control as a result of wilderness living do exist, these usually measure changes in internality or externality in general. The present study employed the Multidimensional Locus of Control Scale, which defines externality in two dimensions; control by powerful others and control by luck or chance. It was hoped that if subjects showed changes in

externality, that it could be determined whether these changes occurred chiefly in their perceptions of the amount of control exerted over them by powerful others, luck and chance, or both.

Inasmuch as adolescence is a time of identity formation and sex-role polarization, it was felt that it might be useful to examine whether wilderness stress affected certain perceived sex-role characteristics in adolescents; namely, masculinity, femininity, warmth, power, and susceptibility to external influence, all of which were derived from the Bem Sex Role Inventory (BSRI). In addition, possible changes in students' perceptions of their present, future, and ideal selves on the factors of activity/potency, maturity/competence, and sociability were also studied, as measured by semantic differentials constructed by the experimenter. No prior research exists in these areas with regard to wilderness stress groups.

Finally, it seems that most of the wilderness stress groups reported in the literature have as their primary objective the exposure of the student to stress, in hopes that the discomfort, fear, and anxiety evoked would precipitate renewed self-evaluation and positive psychological change. The group presented in this study was expressly designed to promote greater spirituality and improved personal and interpersonal functioning through the use of a wide variety of experiential objectives and training of instructors in the use of techniques to facilitate psychological change. The effectiveness of this program in reaching this goal could then be contrasted with other, less goal-directed, programs to observe

whether the magnitude of change from pre- to post-test on the personality inventories differed between programs.

METHOD

Subjects

The control group consisted of students enrolled in psychology classes at Orem High School, Orem, Utah. After obtaining consent from the superintendent of the Alpine School District, the principal of the high school, and the teacher of these classes, the measures were administered on May 1, 1978 to 99 students (37 males, 62 females) by a person with little knowledge of the purpose of the research (to control for experimenter effects). Approximately 20 students in five classes were tested on the same day. Five days later, the same person re-administered the measures to the same classes. Due to student absences, failure of students to properly identify themselves on their test protocols, and failure to complete at least three of the five measures, usable data over both administrations was obtained for only 71 students (25 males, 46 females) aged 16 to 18. The overall attrition rate was 28.3%, 32.4% for males and 25.8% for females.

The experimental group consisted of adolescents 14 to 19 years of age residing in the Oak Hills Stake (ecclesiastical unit), Provo, Utah, of the Church of Jesus Christ of Latter-day Saints (LDS), who had volunteered or had involuntarily been enrolled by their parents to participate in "Wilderness Trek", a five-day wilderness stress program sponsored by the Youth Leadership Department of

Brigham Young University. Approximately 10 adults, either BYU students or parents of adolescent Wilderness students, also participated, but the research involved only the adolescent population. The personality measures were administered on June 1, 1978 to 100 participants (48 males, 52 females) by the experimenter, who also worked as an instructor on this trip. The students were herded into a large gymnasium on the BYU campus, where the tests and pencils were circulated and a general announcement was made stating that completion of these tests was a mandatory part of the course requirements.

After the end of the wilderness experience, post-testing was achieved by dropping off a test at each subject's house, allowing her/him five days to fill it out, then returning to collect it. The latter procedure took three days to complete, as many students neglected to fill out the tests by the required date or were not at home at the scheduled pick-up time, both of which necessitated a return trip. Thus, not all post-tests were completed on the same day, but all were finished within eight days after the termination of the experience. Due to students' failure to fill out at least three of the five measures or failure to return the post-test to the experimenter, usable data over both administrations was obtained on only 67 students (32 males, 35 females). The overall attrition rate was 33%, 33.3% for males and 32.7% for females.

It should be noted that the experimental group seemed enthusiastic about participating in the wilderness experience, and appeared very reluctant to complete paper-and-pencil, school-type

before their adventure. In the pre-testing session, they laughed and joked noisily, collaborated on answers, wrote negative, smart-aleck comments on the papers, and wasted time by talking to each other. As a result, many did not finish their tests or return them to the experimenter. After the trip, however, many of the same persons had become personally acquainted with the experimenter and most made every effort to fill out and return the tests.

Both the experimental and control groups were approximately the same age, though the control group was slightly older, on the average. Most of the subjects in both groups were Caucasian members of the LDS Church. The experimental group was probably higher in socio-economic level than the control group, since the latter were children of residents of a middle-class community, while the former were largely children of BYU professors or professionals, residing in an upper-class neighborhood.

Experimental Treatment

With regard to wilderness stress programs at BYU, Cloward (1978) has stated,

> The Department of Youth Leadership has long been the advocate of natural experience provided from a non-contrived situation being the most effective facilitator of behavioral change. We have also held that any form of psychological manipulation through professional "coaching techniques" and grouping, confrontation groups, etc., are a less effective behavioral change model.

He also delineates three types of objectives that are the foundation of the Wilderness Trek program: 1) experiential objectives, the aim of which is to develop "cognitive understanding of principles or

truths involved with or associated to the subject or program goal", 2) attitudinal objectives, in which the student who has been exposed to and developed an understanding of certain principles "will set in motion changes of feeling, whether they be reversal or intensification of previous attitudes", and 3) behavioral objectives, which are assumed to be a by-product of revised attitudes. Once attitudes are changed by exposure to certain aspects of the wilderness experience, behavior will change to fit these new attitudes.

These objects may be attained through the use of the "challenge chain" concept, in which a challenge, or a projected goal with obstacles between the individual and the objective, is presented to the student. Presentation of the challenge leads to anxiety, viewed as an agent for positive change. Anxiety leads to stress, or physiological or psychic tension based on uncertainty, which in turn may lead to fear. At this point, the successful completion of the challenge may lead to enhanced self-concept, while failure may lead to humiliation or loss of self-esteem.

Participants in Wilderness Trek experience four main types of activities as delineated by Berube (1974): fear- and life-stress-producing tasks, outdoor survival skills, and environmental manipulation problems.

Fear-stress, or stress occurring when the individual must face a challenge which he fears, is experienced by the Wilderness student when he must walk or crawl blindfolded for several hours through the forest, watch a sheep being killed, climb a tree and fall backwards 15 feet into a net, hold a snake, or rappel down an

85-foot cliff. Life-stress, or the student's awareness that his life or physical safety is at risk, occurs as he edges along a narrow trail above a roaring river in the middle of the night, or is felt through the physiological depletion occurring when he hikes 27 miles without sleep or food, and is deprived from sufficient rest and food for a week's time. Outdoor survival skills are taught on the trail by the instructors, who point out edible and poisonous plants and berries, show the students how to carve a spoon from wood and how to prepare sausage, stomach bread, mutton and the hide of the sheep, as well as various other techniques of wilderness living. Finally, the participation of the whole group in solving problems such as how to maneuver all group members over a shoulder-high rope within 15 minutes, how to retrieve a box of oranges without stepping within a 10-foot radius of it, and other situations requiring group initiative and cooperation comprise the environmental manipulation problems or initiative tests. All of these activities are intended to help develop the participant's feelings of competence, self-sufficiency, and skill at interpersonal relationships, which can lead to increased levels of mastery and greater self-esteem. Furthermore, formal and informal "processing" or "valuing" sessions designed to help the student internalize positive values to produce attitudinal and behavioral change are held several times during the experience. With instructors as facilitators and discussion leaders, each student is encouraged to share an insight acquired during a particular activity, which is then discussed by the group. Students are asked to record these insights in a personal journal kept for that purpose.

Instructor Training

Approximately 60 Wilderness instructors, male and female, were personally selected by the director of the program from several hundred applicants, all BYU students. Those students who, in the director's opinion, demonstrated the highest moral and ethical standards, personal religious commitment, enthusiasm, sincere desire to work with youth and the ability to motivate and inspire them to change in a positive way, were selected. Age, physical condition and previous outdoor experience were of relatively minor importance. The instructors selected spent the first two weeks of May in the classroom, learning the usual outdoor skills such as the area's flora and fauna, elementary geology, weather, how to secure and prepare food in the wilderness, first aid, and so on. However, the emphasis in instructor training was the development of enthusiasm for working with youth, and channeling this energy into effective leadership designed to facilitate attitudinal and behavioral change in the students. Instructors were trained in the use of techniques to develop trust and rapport with their students, such as looking into a student's eyes to convey sincerity of feeling; the importance of physical contact; taking the time to privately counsel individual students about their concerns; monitoring the physical and emotional state of each student, and so on. In addition, psychological concepts such as self-esteem, motivation, rapport and trust were defined and discussed.

Stress was introduced as a useful tool by which students would be forced to re-evaluate and re-examine their lives and their

positive and negative qualities as human beings. As instructors read the mood of the group and regulated the level of stress accordingly (for example, a physically strong group could be made to hike at a faster pace), students would experience a moderate level of physical and/or emotional distress, which would act as a motivator for positive attitudinal and behavioral change.

Thus, the role of the Wilderness instructor was to 1) be an example to her/his students in her/his own personal life, and 2) to act as a facilitator for positive psychological change through her/his own enthusiasm and interaction with the individual student, the creation and regulation of stress in the group, and the use of elementary psychological techniques.

Measures

Rosenberg Self-Esteem Scale

Rosenberg (1965) developed a 10-item Guttman scale in an effort to achieve a unidimensional measure of global self-esteem. These ten items consist of positive or negative evaluations of various aspects of the self, scored as to how well they pertain to the respondent (1 = strongly disagree to 4 = strongly agree). He reports a coefficient of reproducibility for his scale as .94 in a population of 5,024 high school juniors and seniors from ten high schools in New York state, with .90 reproducibility as an arbitrary minimum for the inference that one is dealing with a satisfactorily reliable, unidimensional scale. Silber and Tippert (1965) obtained a two-week test-retest reliability coefficient of .85 for 28 college subjects, and also found high convergent validities between the

Rosenberg and other measures of self-esteem, as well as low Rosenberg scores associated with depressive affect, anxiety, and psychosomatic symptoms, interpersonal insecurity, and parental disinterest. High Rosenberg scores were correlated with participation in extracurricular activities, leadership, and participation in the "Upward Bound" program. Silber and Tippett concluded by stating, "it is impressive that such high reliability is attainable with only 10 items and that such a short scale has yielded relationships supporting its construct validity" (p. 189).

Tennessee Self-Concept Scale

The Tennessee Self-Concept Scale (Fitts, 1965) is comprised of 100 self-descriptive statements which the subject marks on a 5-step scale ranging from "completely true" to "completely false". The statements were drawn from three other self-concept measures, plus "written self-descriptions of psychiatric patients and non-patients" (Fitts, p. 1); and are equally divided between positive and negative items.

Ninety of the 100 statements comprise nine scales: a total self-regard score measuring the individual's overall level of self-esteem (Total Positive), plus eight other scales measuring various aspects of the self-concept. These are arranged in a two-dimensional, 3 x 5 scheme with three rows and five columns. The variables in rows are labeled: (1) identity, or "what I am"; (2) self-satisfaction, or "how I accept myself"; and (3) behavior, or "how I act". Column variables are entitled: (A) physical self, or the individual's view of his body, his health, physical

appearance, skills, and sexuality; (B) moral-ethical self, or one's feeling of moral worth, being a "good" or "bad" person, relationship to God, and satisfaction with one's religion or lack of religion; (C) personal self, or the individual's sense of personal worth, felt adequacy as a person, and self-evaluation of his personality, apart from his body and interpersonal relationships; (D) family self, or one's feeling of adequacy, worth, and value as a family member, or with reference to his closest constellation of associates; and (E) social self, or the individual's sense of adequacy and worth in social interaction with others in general. The remaining 10 items comprise a self-criticism scale, or a measure of the individual's level of defensiveness, and consists of mildly self-derogatory statements that most people would acknowledge as being true of them.

The test manual (Fitts, 1965) states that the standardization group for this measure consisted of 626 persons ranging from 12 to 68 years of age of various racial, social, economic, intellectual, and educational levels. Fitts affirms that "the effects of such demographic variables as sex, age, race, education, and intelligence on the scores of the scale are quite negligible" (p. 13). Data and references also suggest that the test discriminates between psychiatric patients and non-patients, as well as between patients with different types of psychiatric disorders.

Two-week test-retest reliability coefficients are reported as .92 for the total self-regard score, with rows ranging from .88 to .91 and columns from .85 to .90. However, evidence that the measure is sensitive to self-concept changes due to significant

positive or negative life experiences has also been presented. For example, Gividen (1959) evaluated the effects of stress and failure in army paratroop trainees. Those who passed and failed showed significant score decreases, with the failing group showing significantly greater decreases on certain scales. Ashcraft and Fitts (1964), in their study of patients who had been in therapy and those who had not, found that the therapy group changed significantly in the expected direction on 18 of the 22 variables studied.

Semantic Differential Self-Evaluation Measures

This instrument presented the subject with three concepts to be rated on a set of semantic differential scales (see Osgood, Suci and Tannenbaum, 1957). The three concepts were "myself as I am now" (Present Self), "myself as I will be in the future, 5 to 10 years from now" (Future Self), and "myself as I would like to be" (Ideal Self). Each concept was rated on 28 7-point bipolar scales. The scale anchors were chosen to include trait adjectives relating to activity/potency, maturity/competence, and sociability (for a complete list, see Appendix C). Positive and negative items are equally distributed on both sides of the continuum to minimize the influence of response sets.

Multidimensional Locus of Control Scale

Levenson (1974), in an effort to assess diverse agents of control in a person's life, devised three scales to measure the degree of internality or externality of locus of control as perceived by an individual. With regard to externality, she postulated

a belief in chance or luck as separate from a belief that positive others control one's life. Her hypothesis was that of those individuals scoring high on externality, those who believe that environmental events are random and due to luck or chance differ in behavior and cognition from persons who believe that environmental events occur in an orderly fashion, but are controlled by powerful others. Furthermore, she believed that those who feel their lives are largely ruled by chance or luck will be cognitively and behaviorally different from those who feel that they themselves are not in control, scoring low on internality.

The scales themselves are labeled Internal (I), Powerful Others (P), and Chance (C) and each consists of eight items in a Likert six-point scale, rendering each scale statistically independent of each other. Statements reflecting internal, powerful other, and chance orientations are presented alternately in the form of a 24-item attitude scale. The items consist of statements adapted from Rotter's Internal-External Locus of Control Scale (1966), plus several statements written specifically for the three scales. They are phrased to pertain to the subject personally, rather than "people in general", and make no mention of the individual's ability or inability to modify the situations presented. Thus, the confounding factors of personal vs. ideological control and modifiability of social systems or institutions were avoided.

Though Levenson reports estimates of internal consistency of this measure as only "moderately high", they compare favorably with those obtained for Rotter's scale. She also reports Kuder-

Richardson reliabilities as $\underline{r}$ = .64 for the I scale, .77 for the P scale, and .79 for the C scale. Spearman-Brown split-half reliabilities were .62 for the C scale, with test-retest reliabilities for a one-week period as .64, .74 and .78, respectively, and means for the second administration of the scale were not significantly different than the first. Finally, correlations between the Marlow-Crowne Social Desirability Scale (1964) and each of the items was near 0.00, the highest being .19.

Bem Sex Role Inventory

Bem (1974) developed a measure to assess an individual's identification with certain traits ascribed by American society to correspond to a masculine or feminine sex role. The Bem Sex Role Inventory (BSRI) contains a masculinity scale, a femininity scale, and an undifferentiated (low on masculinity and femininity) scale, each of which are comprised of 20 words describing personality characteristics rated on a 7-point scale (60 words total). It offers a fourfold classification scheme by which subjects may be scored as either masculine (high masculinity-low femininity), feminine (high femininity-low masculinity), androgynous (high masculinity-high femininity), or undifferentiated (low masculinity-low femininity).

Each item qualified as masculine if it was judged by two independent samples of undergraduates ($\underline{N}$s = 723 and 194) to be more desirable in American society for a man than for a woman (i.e., assertive, analytical), or qualified as feminine if judged to be more desirable in American society for a woman than for a man (i.e.,

childlike, shy, warm). The testee indicates on the 7-point scale how well each of these masculine and feminine personality characteristics describes her/himself, ranging from 1 (never or almost never true of me) to 7 (always or almost always true of me). An androgyny score, defined as Student's t-ratio of the difference between the subject's endorsement of masculinity and femininity standardized with respect to the standard deviations of his or her masculinity and femininity scores, may also be computed. Bem states that psychometric analyses have revealed that the masculinity and femininity scales are empirically and logically independent (avg. $\underline{r}$ = -.03), with the androgyny score internally consistent (avg. α = .86). Test-retest reliabilities over a four-week interval were .90 for the masculinity scale, .90 for the femininity scale and .93 for the androgyny score. Also, the average correlation for each item and a social desirability measure was -.06.

At this point, the reader is referred to Appendix C for an example of the questionnaire format, including a Michigan State University Departmental Research Consent Form; sheet of general instructions and blanks for subject identifying information; semantic differential measures constructed by the experimenter (for descriptions of other measures used, consult references cited for each); and two open-ended questions, the first of which was administered at pre-test and the second, at post-test.

Hypotheses

The following hypotheses were tested:

1. That experimental subjects' scores on two measures of self-esteem (Rosenberg and Tennessee Self-Concept Scale) would increase significantly ($p < .05$) in a positive direction from pre-test to post-test as a result of the experimental treatment, while the scores of the control group on the same measures would not change significantly.

2. That experimental subjects' scores on the Internal scale of the Multidimensional Locus of Control measure would increase significantly ($p < .05$) from pre-test to post-test as a result of the experimental treatment, while the scores of the control group on the same scale would not change significantly.

3. That male experimental subjects' scores on the Bem Sex Role Inventory would move significantly ($p < .05$) in the direction of warmth and/or femininity from pre-test to post-test, while females' scores would more significantly in the direction of masculinity and/or power. However, male and female experimental subjects were expected to decrease significantly in susceptibility to external influence. Control group subjects were expected to show no significant change on any of these variables.

4. That experimental subjects' scores on the semantic differential Present Self scale would shift significantly ($p < .05$) in the direction of self-evaluation of greater activity/potency, maturity/competence, and sociability from pre-test to post-test, while the scores of the control group would not change significantly.

5. That experimental and control group subjects' scores on the semantic differential scales Future Self and Ideal Self would

not change significantly ($p < .05$) in the areas of activity/potency, maturity/competence, and/or sociability from pre-test to post-test.

6. That the difference between the experimental subjects' scores on the Present Self and Ideal Self scales on the factors activity/potency, maturity/competence, and sociability would be significantly ($p < .05$) smaller than that of the control group from pre-test to post-test.

RESULTS AND DISCUSSION

Derivation of the Scale Scores

The data were analyzed on 53 different variables obtained from the five experimental measures. These are listed in Table 1, and the means of main or interaction effects reaching significance are listed in Table 2.

Insert Table 1 about here

The variables were derived as follows:

Rosenberg Self-Esteem Scale

Each person's score on each of the 10 items was added to obtain a total score, which served as a global measure of self-esteem.

Tennessee Self-Concept Scale

Besides obtaining scores for the three row (identity, behavior, self-satisfaction) and five column (physical, moral-ethical, personal, family, and social selves), the variables of this 3 × 5 scheme were also crossed to obtain 15 new variables (physical identity, physical satisfaction, etc.). By crossing the original, more-inclusive variables, it was hoped that more specific information could be gained as to the nature of possible changes in the experimental group. Thus, discussion of changes measured by the TSCS will focus on the more specific measures resulting from

Table 1. List of Measures and Variables

1. Rosenberg Self-Esteem Scale

Tennessee Self-Concept Scale

Global Variables*	Specific Variables
2. Identity	12. Physical identity
3. Self-satisfaction	13. Physical satisfaction
4. Behavior	14. Physical behavior
5. Physical self	15. Moral-ethical identity
6. Moral-ethical self	16. Moral-ethical satisfaction
7. Personal self	17. Moral-ethical behavior
8. Family self	18. Personal identity
9. Social self	19. Personal satisfaction
10. Total positive	20. Personal behavior
11. Self-criticism	21. Family identity
	22. Family satisfaction
	23. Family behavior
	24. Social identity
	25. Social satisfaction
	26. Social behavior

Multidimensional Locus of Control Scale

27. Internal locus of control*	External locus of control:
	28. Powerful others*
	29. Chance or luck*

Table 1 (continued)

Bem Sex-Role Inventory

Female-identified variables	Male-identified variables	
30. Femininity*	33. Masculinity*	35. Sex-role neutrality*
31. Warmth	34. Power	
32. Susceptibility to external influence		

Semantic Differential Scales (global scores over 18 items)

36. Present self

37. Future self

38. Ideal self

Each of the following variables was separately assessed over three desired factors: 1) activity/potency, 2) maturity/competence, and 3) sociability.

Present self (39, 40, 41)

Future self (42, 43, 44)

Ideal self (45, 46, 47)

Difference between Present and Future self (48, 49, 50)

Difference between Present and Ideal self (51, 52, 53)

Note: All numbered items were variables included in the analysis.

*Sub-scales derived by author of measure.

crossing the row and column variables, rather than attending to the more inclusive variables. Finally, scores were also obtained for each subject on the self-criticism and total positive dimensions. Thus, the TSCS yielded a total of 25 measures.

Semantic Differential Self-Evaluation Measures

Each person's score on each of the 28 items was added to obtain a total score for each of the three semantic differential measures (Present Self, Future Self, and Ideal Self), with high scores indicating positive self-evaluation on each measure. The Present Self scale was then factor analyzed by the varimax rotation method and three factors were obtained: 1) activity/potency (comprised of the adjectives energetic, adventurous, assertive, leader, outgoing, active, effective, strong, and ambitious); 2) maturity/competence (comprised of the adjectives practical, wise, mature, responsible, helpful, dependable, and competent); and 3) sociability (comprised of the adjectives considerate, understanding, and friendly). These three factors were then treated as sub-scales of all three semantic differential measures, and the differences between these sub-scales for the Present Self, Future Self, and Ideal Self measures were analyzed, yielding a total of 18 variables from this measure.

Multidimensional Locus of Control Scale

The three scales derived by Levenson (1974) (Internal, Powerful Others, and Chance) were included in the analysis.

Bem Sex Role Inventory

In addition to Bem's (1974) masculine, feminine and undifferentiated scales, a factor analysis revealed three additional factors: 1) power (including the adjectives self-reliant, independent, athletic, assertive, strong personality, forceful, leadership abilities, makes decisions easily, self-sufficient, dominant, aggressive, acts as a leader, and competitive); 2) warmth (including the adjectives feminine, sympathetic, sensitive to needs of others, understanding, compassionate, sincere, warm, tender, friendly, and gentle); and 3) susceptibility to external influence (including the adjectives yielding, flatterable, jealous, secretive, gullible, inefficient, and childlike). Although the power factor almost replicated all the adjectives included in the masculine scale, it behaved differently in the statistical analysis, so it was included in the study. Thus, a total of six variables were obtained from this measure.

All statistical analyses were performed using sex, experimental/control group, and pre/post-test as independent variables. The computer program BALANOVA, developed by Brian Coyle and Raymond Frankmann of Michigan State University, computed an analysis of variance for all variables, which contained unequal numbers of cases per cell.

Findings from the Analysis of Variance

Table 2 presents a list of the main and interaction effects possible in this study, with a list of variables that reached statistical significance for each main and interaction effect, and their means.

Insert Table 2 about here

As can be seen, no significant main effects were found for the experimental/control variable, indicating that there were no major differences between these groups as a whole in their response to the personality variables over pre- and post-testing. A comparison of means also shows that on the pre-test, the control group scores higher than the experimental group on approximately half the variables, and the experimental group scores were slightly higher on the other half of the variables. T-tests for those variables that yielded significant ($p < .05$) experimental/control, pre/post-test (two-way) and experimental/control, pre/post-test, and sex (three-way) interactions revealed negligible differences (all t's below .14) between experimental and control group pre-test means.

Statistically significant sex differences were found in both groups on 22 variables (over pre-post testing). Table 2 shows that on the locus of control variables females rated themselves as more internally controlled and less controlled by chance events than did males. The sex role characteristics showing higher means for females were femininity, sex-role neutrality, and warmth. Females also scored higher than males on most of the self-concept variables, including moral-ethical identity, moral-ethical satisfaction, moral-ethical behavior, family identity, social identity, social satisfaction, social behavior, and also on the more inclusive variables identity, behavior, moral-ethical self, family self, and social self. Finally, the semantic differential scales revealed

Table 2. Summary of Significant Main and Interaction Effects

Variables	(1) Experimental/Control by pre/post-test	(2) Pre/Post Test	(3) Sex
1. Rosenberg Self-Esteem Scale		Pre-test = 21.53[a] Post-test = 22.59	
2. Internal			Male = 9.97[d] Female = 8.46
3. Chance			Male = 25.79[d] Female = 28.22
4. Powerful Others			
5. Masculinity			
6. Femininity		Pre-test = 79.49[c] Post-test = 81.28	Male = 74.08[a] Female = 86.69
7. Neutrality			Male = 68.43[d] Female = 71.12
8. Present Self		Pre-test = 36.35*[a] Post-test = 31.81*	
9. Future Self			
10. Ideal Self			
11. Physical Identity	Control, pre = 19.11[c] Exptl., pre = 18.26 Control, post = 19.02 Exptl., post = 19.32	Pre-test = 18.68[d] Post-test = 18.01	

Table 2 (continued)

Variables	(1) Experimental/Control by pre/post-test	(2) Pre/Post Test	(3) Sex
12. Physical Satisfaction	Control, pre = 14.87[d] Exptl., pre = 14.23 Control, post = 14.52 Exptl., post = 15.0		Male = 16.65[b] Female = 13.67
13. Physical Behavior	Control, pre = 17.39[d] Exptl., pre = 17.04 Control, post = 17.63 Exptl., post = 18.40	Pre-test = 17.21[b] Post-test = 18.01	
14. Moral Identity	Control, pre = 19.80[d] Exptl., pre = 19.74 Control, post = 19.44 Exptl., post = 20.53		Male = 18.77[a] Female = 20.99
15. Moral Satisfaction			Male = 13.76[b] Female = 18.83
16. Moral Behavior	Control, pre = 16.81[d] Exptl., pre = 16.92 Control, post = 17.11 Exptl., post = 18.34	Pre-test = 16.87[b] Post-test = 17.72	Male = 15.76[a] Female = 18.83
17. Personal Identity	Control, pre = 19.59[d] Exptl., pre = 19.35 Control, post = 19.42 Exptl., post = 20.57	Pre-test = 19.47[d] Post-test = 19.99	
18. Personal Satisfaction			

Table 2 (continued)

Variables	(1) Experimental/Control by Pre/Post-Test	(2) Pre/Post Test	(3) Sex
19. Personal Behavior	Control, pre = 14.61[d] Exptl., pre = 13.64 Control, post = 14.59 Exptl., post = 14.54		
20. Family Identity	Control, pre = 20.39[d] Exptl., pre = 19.96 Control, post = 20.07 Exptl., post = 21.58	Pre-test = 20.17[d] Post-test = 20.82	Male = 19.80[d] Female = 21.20
21. Family Satisfaction			
22. Family Behavior	Control, pre = 15.29[c] Exptl., pre = 14.65 Control, post = 15.09 Exptl., post = 15.75		
23. Social Identity			Male = 17.74[a] Female = 19.61
24. Social Satisfaction			Male = 13.03[d] Female = 14.16
25. Social Behavior		Pre-test = 15.84[d] Post-test = 16.51	Male = 15.20[b] Female = 17.15
26. Warmth			Male = 39.20[a] Female = 49.50
27. Power		Pre-test = 54.10[d] Post-test = 55.39	

Table 2 (continued)

Variables	(1) Experimental/Control by Pre/Post Test	(2) Pre/Post Test	(3) Sex
28. Susceptibility to External Influence	Control, pre = 18.84[d] Exptl., pre = 20.60 Control, post = 19.38 Exptl., post = 19.61		
29. Present Self, Activity/ Potency Factor			
30. Present Self, Maturity/ Competency Factor	Control, pre = 8.08*[d] Exptl., pre = 9.72* Control, post = 7.27* Exptl., post = 7.53*	Pre-test = 8.90*[a] Post-test = 7.40*	
31. Present Self, Sociability Factor			Male = 3.50*[a]* Female = 2.14*
32. Future Self, Activity/ Potency Factor			
33. Future Self, Maturity/ Competency Factor			
34. Future Self, Sociability Factor	Control, pre = 1.06*[b] Exptl., pre = 1.50* Control, post = 1.42* Exptl., post = .99*		Male = 1.56[d] Female = .93
35. Ideal Self, Activity/ Potency Factor			

Table 2 (continued)

Variables	(1) Experimental/Control by Pre/Post Test	(2) Pre/Post Test	(3) Sex
36. Ideal Self, Maturity/ Competency Factor			
37. Ideal Self, Sociability Factor			
38. Difference Between Present and Future Selves, Activity/Potency Factor		Pre-test = 7.84[d] Post-test = 6.59	
39. Difference Between Present and Ideal Selves, Activity/Potency Factor			
40. Difference Between Present and Future Selves, Maturity/Competency Factor		Pre-test = 6.92[a] Post-test = 5.42	
41. Difference Between Present and Ideal Selves, Maturity/Competency Factor		Pre-test = 8.61[a] Post-test = 7.01	
42. Difference Between Present and Future Selves, Sociability Factor			Male = 2.58[b] Female = 1.72
43. Difference Between Present and Ideal Selves, Sociability Factor			Male = 3.36[b] Female = 2.23

Table 2 (continued)

Variables	(1) Experimental/Control by Pre/Post Test	(2) Pre/Post Test	(3) Sex
44. Identity	Control, pre = 97.82[b] Exptl., pre = 96.13 Control, post = 97.01 Exptl., post = 101.79	Pre-test = 96.97[c] Post-test = 99.40	Male = 95.18[b] Female = 101.19
45. Self-Satisfaction			
46. Behavior	Control, pre = 79.55[b] Exptl., pre = 79.04 Control, post = 80.19 Exptl., post = 84.99	Pre-test = 79.30[a] Post-test = 82.59	Male = 77.85[b] Female = 84.04
47. Physical Self	Control, pre = 51.09[b] Exptl., pre = 50.85[c] Control, post = 50.87 Exptl., post = 53.46	Pre-test = 50.96[d] Post-test = 52.16	
48. Moral-Ethical Self	Control, pre = 52.16[b] Exptl., pre = 52.33 Control, post = 50.60 Exptl., post = 54.20		Male = 48.62[a] Female = 56.03
49. Personal Self			
50. Family Self	Control, pre = 48.36[b] Exptl., pre = 47.22 Control, post = 48.13 Exptl., post = 50.06	Pre-test = 47.79[d] Post-test = 49.09	Male = 46.79[d] Female = 50.09
51. Social Self			Male = 45.44[a] Female = 51.45

Table 2 (continued)

Variables	(1) Experimental/Control by Pre/Post Test	(2) Pre/Post Test	(3) Sex
52. Self-Criticism			
53. Total Positive	Control, pre = 24.90[d] Exptl., pre = 24.93 Control, post = 24.61 Exptl., post = 25.68		

[a] $\underline{p} < .0005$ [b] $\underline{p} < .005$ [c] $\underline{p} < .01$ [d] $\underline{p} < .05$

[1] Experimental/control by pre-post test by sex.

WARMTH:
control male pre = 39.54 exptl. male pre = 38.27[d]
control male post = 38.92 exptl. male post = 40.08
control female pre = 47.80 exptl. female pre = 50.59
control female post = 48.66 exptl. female post = 50.84

SELF-CRITICISM:
control male pre = 24.58 exptl. male pre = 22.42[d]
control male post = 23.08 exptl. male post = 23.58
control female pre = 27.30 exptl. female pre = 23.00
control female post = 22.28 exptl. female post = 21.75

[2] Sex by pre-post test.

INTERNAL:	Male pre = 9.87	Female pre = 9.24[d]
	Male post = 10.07	Female post = 7.68
POWERFUL OTHERS:	Male pre = 22.44	Female pre = 24.40[d]
	Male post = 24.02	Female post = 24.13
PHYSICAL BEHAVIOR:	Male pre = 16.92	Female pre = 17.50[d]
	Male post = 18.19	Female post = 17.83

[3] Experimental/control group. No statistically significant findings.

Table 2 (continued)

[4]Experimental/control by sex. IDEAL SELF:	control male = 6.78*	exptl. male = 7.98*d
	control female = 10.69*	exptl. female = 5.4*
FUTURE SELF MATURITY/COMPETENCE FACTOR:	control male = 30.21*	exptl. male = 38.57*d
	control female = 35.00*	exptl. female = 20.14*
IDEAL SELF-ACTIVITY/ POTENCY FACTOR:	control male = 2.04*	exptl. male = 2.57*d
	control female = 3.78*	exptl. female = 1.80*
IDEAL SELF- SOCIABILITY FACTOR:	control male = .08*	exptl. male = .35*d
	control female = .47*	exptl. female = .03*

*Denotes reverse scoring.

that females in both groups rated themselves higher on the sociability factor for their present and future selves, and showed a significantly smaller discrepancy between their perceptions of their present selves as compared with both their future and ideal selves on the sociability factor, than did the males. Males scored more positively than females on only one variable: they rated themselves higher on physical satisfaction (a measure of self-concept) than did the females. These findings are contrary to those of Rosenberg (1975) reported previously, who found that girls were more vulnerable to criticism, more self-conscious, and lower in self-esteem than boys.

There were also 18 variables that showed a significant change from pre- to post-test in both the experimental and control groups. The table of means shows that on the self-esteem measures, subjects in both groups tended to score significantly more highly on the post-test on Rosenberg's (1965) global measure of self-esteem; on physical identity, physical behavior, moral-ethical behavior, personal identity, family identity, and social behavior scales, as well as the more inclusive variables of identity, behavior, physical self, and family self, of the TSCS. On the sex-role measures, significant post-test increases also occurred on the femininity and power scales for both groups. On the semantic differential scales, significant post-test increases occurred on the maturity/competence factor of the present self dimension, as well as the discrepancy scores between present and future selves for the activity/potency factor. Pre-post test increases for both

groups were also noted on the discrepancy scores between present and future and present and ideal selves on the maturity/competence factor. Since all of the changes were increases in scores from pre-to post-test, it is hypothesized that these particular variables are sensitive to testing effects, and that subjects who take these measures for a second time will change towards adjustment relative to their scores on the first test. Campbell and Stanley (1963) have noted that on a second testing, subjects taking personality tests generally tend to appear better adjusted. One of their hypotheses, which seems plausible with regard to the present study, is that in a signed personality inventory, the initial administration may represent a problem-solving situation in which the subject attempts to discover the hidden purpose of the test. Having thought about the items after the initial administration, or discussing them with friends, the individual may learn how to present her/himself more acceptably the second time.

In this study, the two effects of major interest are the two-way interaction between the experimental/control group and pre-post-testing, as well as the three-way interaction between experimental/control group, pre/post-testing, and sex. The hypotheses generally postulate that the experimental group will change favorably from pre- to post-test, while the control group will show no significant change in either direction.

As can be seen in column 1 and footnote 1 of Table 2, 20 variables showed statistically significant changes ($p < .05$) over the effects of interest.

Tests of Hypotheses and Relationships Among Variables

In general, the findings confirmed previous research indicating that positive changes are found on many scales of the TSCS following a wilderness stress experience. The breakdown of the original TSCS scales into subscales allowed more precision in pinpointing changes in self-esteem for the experimental group, with statistically significant gains found on the following variables: physical self as a whole, including physical identity, physical self-satisfaction, and physical behavior; moral-ethical self, including moral-ethical identity and moral-ethical behavior; personal identity and personal behavior (but not personal self); family self, including family identity and family behavior; and total positive score. However, the scales self-satisfaction and social self did not change significantly, though the means changed in the expected direction. A comparison of the results of this highly structured, goal-oriented program with the results of others on the TSCS (the only measure on which data was consistently available) showed that the number of scales showing significant positive change did not exceed those of other wilderness stress groups (see Appendix B).

Hypothesis 1

Rosenberg Self-Esteem Scale

Both the experimental and control groups showed increases from pre- to post-testing on this measure, significant at the .0005 level. Because respondents in both groups tended to score higher at a pre-testing, this measure was not effective in detecting whether changes in global self-esteem occurred as a result of the experimental treatment.

Tennessee Self-Concept Scale

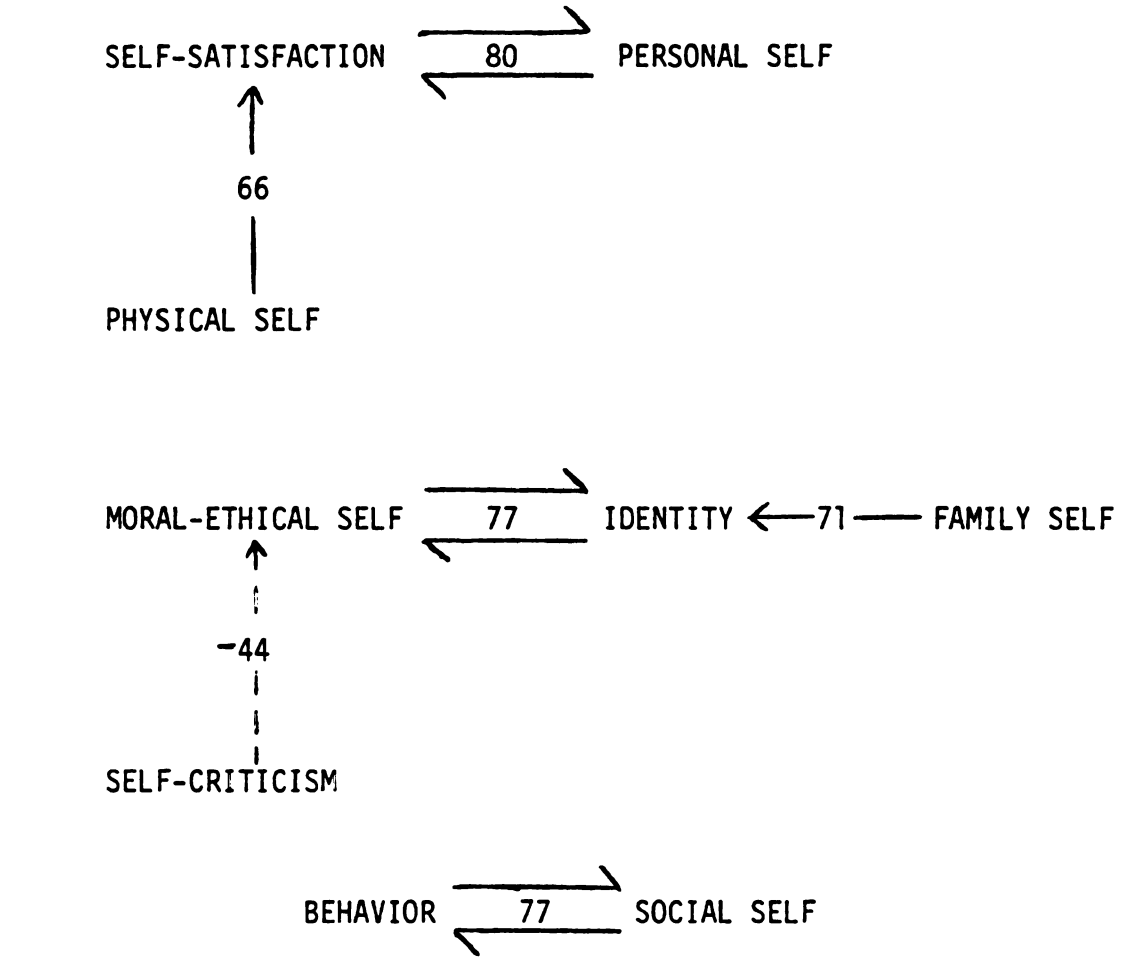
As noted before, the experimental group showed pre- to post-test gains significantly higher than the control group on 15 of 25 scales. These were: physical identity, physical satisfaction, physical behavior, moral-ethical identity, moral-ethical behavior, personal identity, personal behavior, family identity, family behavior, and the global variables identity, behavior, physical self, moral-ethical self, family self, and total positive score.

Conversely, all five social dimension scales and four of the five satisfaction scales failed to reach significance in the direction of positive change, with only physical satisfaction changing significantly in the desired direction. The global variables social self and self-satisfaction also failed to show significant positive change.

A cluster analysis (McQuitty, 1957) of the variables that significantly differentiated between the control and experimental groups is shown in Figures 1 and 2.

Insert Figure 1 about here

Figure 1 shows the relative strength of the correlations between nine variables of the TSCS: the eight original, more inclusive scales and the self-criticism scale. Total positive, a summary score, was highly correlated with all the eight scales of which it was comprised, and so was excluded from the analysis. The diagram shows that the variables split into three separate clusters, with the strongest bond or relationship between the self-satisfaction



____ = positive correlation

---- = negative correlation

FIGURE 1. Cluster Analysis: Global Variables of the TSCS

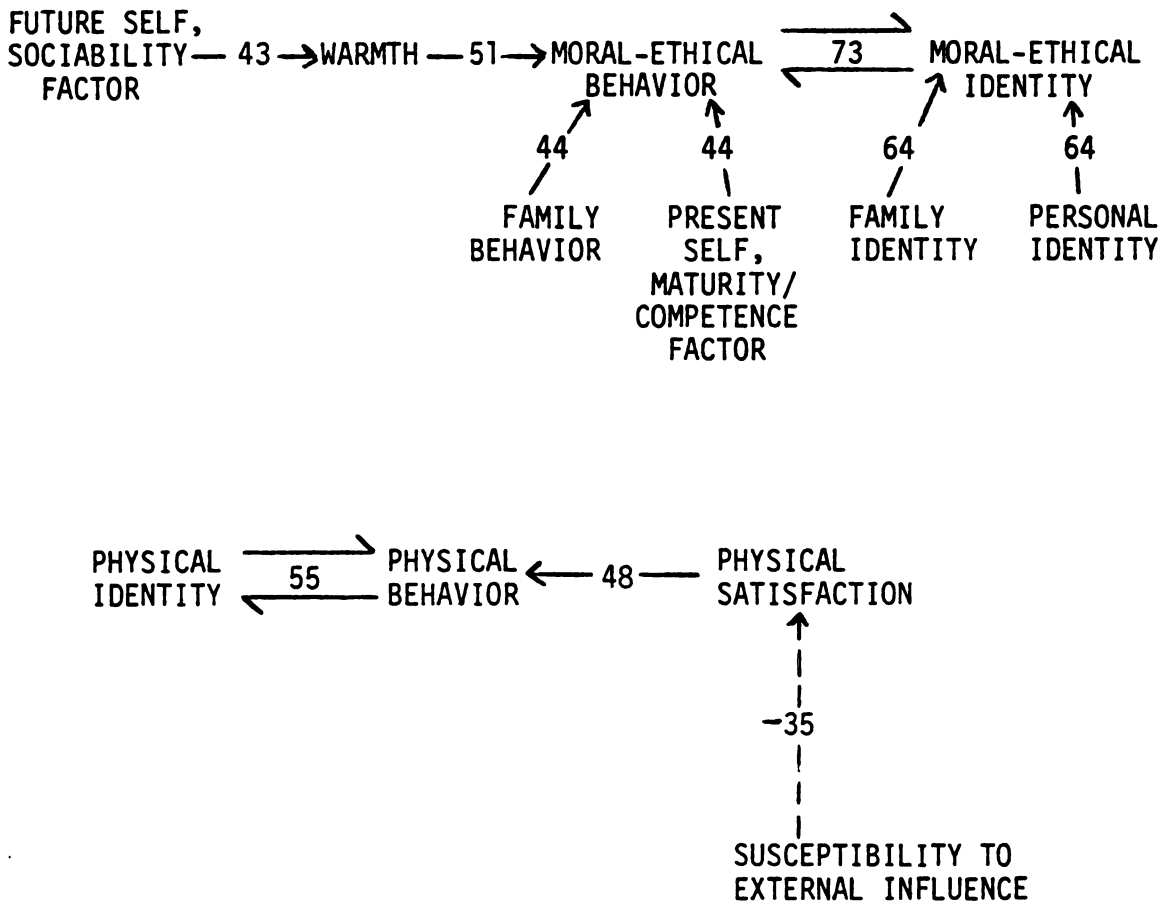
and personal self variables (r = .80). It seems that the higher the students evaluated their personality, the more they were able to accept themselves, which is not surprising. Both of these variables were among the three original TSCS variables which did not show statistically significant changes from pre- to post-test for the experimental group. In addition, physical self was highly correlated (r = .66) with self-satisfaction, indicating that those students who felt positively about their bodies were more satisfied with themselves as persons, and vice versa. It may be that students' perception of their physical bodies is a crucial determinant of their level of self-satisfaction.

The strongest relationship in the second cluster was between moral-ethical self and identity (r = .77), indicating that students' evaluation of their own identity primarily rested on their evaluation of themselves on the moral-ethical dimension. Another important component of identity appeared to be students' evaluation of themselves as family members (r = .71). Thus, how students felt about themselves in a moral-ethical sense and their feelings about themselves as family members were most important contributors to their identity scores. However, it is interesting to note the inverse relationship between their scores on moral-ethical self and ability to be self-critical (r = -.44). It may be that the greater the level of the student's defensiveness (low ability to be self-critical), the less s/he is willing to rate her/himself low on the moral-ethical dimension.

The third variable cluster consisted of a correlation between two variables, evaluation of behavior and social self. Because experimental group members changed significantly in a positive direction from pre- to post-test on evaluation of behavior, but not on social self, this result was unexpected. However, both groups showed significantly higher means for females than males on both variables, and this may have been the cause of the strong correlation between the two (r = .77).

Insert Figure 2 about here

Figure 2 shows the relationships between the more specific sub-variables obtained by crossing the row and column variables of the TSCS, the two BSRI variables, and the present self, maturity/competence and future self, sociability variables obtained from the semantic differentials, all of which also significantly differentiated the experimental and control groups. Two variable clusters were found, with the highest correlation between moral-ethical behavior and moral-ethical identity (r = .73). This finding was not unexpected, as both scales tapped aspects of the moral-ethical self. Also expected were the tight intercorrelations among those variables with an identity component (moral-ethical identity, family identity, and personal identity). On the left side of the main bond in this cluster it can be seen that three factors are highly correlated with the variable moral-ethical behavior: warmth (r = .51), family behavior (r = .44), and the maturity/competence factor of the Present Self (r = .44). It seems logical that the moral-ethical and



____ = positive correlation

---- = negative correlation

FIGURE 2. Cluster Analysis: Specific Variables of the TSCS, BSRI Variables, Semantic Differential Variables

family behavior scales should be highly correlated, as they both share a behavior component. It was also expected that students who rated themselves as more mature and competent in the present would rate their moral-ethical behavior highly; those who were satisfied with their behavior in the moral-ethical dimension would seem likely to live a lifestyle corresponding to their self-ideal, be less troubled by guilt in this regard, and consider themselves more mature and/or competent than students of whom this was not the case. However, the relatively high correlation of warmth with moral-ethical behavior was not predicted. It may be that, again, those students who felt less guilt over their moral-ethical behavior invested less energy in resolving these conflicts and thus felt motivated and free to invest energy in others. Finally, the future self, sociability factor correlated appreciably ($\underline{r}$ = .43) with warmth, indicating that students rating themselves high on warmth also felt they would be sociable in the future. It seems likely that students who are oriented towards giving to others in a warm fashion in the present would be likely to rate themselves as sociable and externally oriented in the future. In addition, all the adjectives defining the sociability factor were included in the adjective list comprising the warmth factor.

Not surprisingly, the second cluster consisted of three variables with physical self components: physical identity, physical behavior, and physical satisfaction. It appears that students' evaluations of themselves on the physical dimension was independent of their feelings about themselves on any other dimension except

susceptibility to external influence, which was negatively correlated with physical satisfaction (r = -.35). It may be that inasmuch as adolescents are seeking to formulate an identity in many areas, including their physical selves, and since adolescence is a time of physical changes related to maturation, it may be that students were particularly sensitive to others' evaluations of their physical selves. However, it seems that students who evaluated themselves highly in this regard were relatively autonomous and less affected by the evaluations of others in general, and thus relatively non-susceptible to external influence.

Hypothesis 2

Somewhat surprisingly, the females in both the experimental and control groups tended to feel significantly more internally directed than did the males on both pre- and post-tests. Another finding of statistical significance was that males in both groups tended to move away from internality from pre- to post-testing, while females of both groups moved towards internality.

With respect to the scales measuring externality of locus of control, it was found that females generally endorsed the view that chance or luck played a significantly smaller role in their lives than did the males. In addition, males in both groups felt that powerful others played a significantly smaller role in their lives from pre- to post-test, while females over both groups showed a slight increase in the degree of importance they ascribed to powerful others in their lives. Since the control group as well as experimental group members showed statistically significant changes

towards internality and away from externality, Hypothesis 2 was not supported in this respect.

Hypothesis 3

In discussing the variables labeled as "feminine", the females of both groups scored significantly higher than the males on the femininity variable ($p < .0005$), and it was noted that for both sexes in both groups as a whole, post-test scores tended to be significantly higher than pre-test scores ($p < .006$), suggesting that this scale was sensitive to testing effects. Experimental-group males did not move significantly in the direction of femininity, as hypothesized. On the warmth variable, as expected, females in both groups scored considerably higher than males. However, a significant three-way interaction was noted, in which females of both groups showed a slight increase in warmth, while control males showed a slight decrease, and experimental males showed a larger increase than the other three groups. Thus, it seems that the experimental males perceived themselves as gaining in warmth, possibly as a result of the opportunities they had to play supportive and empathetic roles for other group members during their wilderness experience. On the susceptibility to external influence factor, it was found that the control group showed an increase from pre- to post-test, while the experimental group showed a decrease. Thus, both sexes in the experimental group felt less influenced by factors outside themselves, possibly as a result of feelings of independence or self-reliance engendered by their wilderness experience.

For the variables deemed "masculine", the only finding of statistical significance for the power variable was that post-test scores of both groups tended to be higher than pre-test scores, again suggesting the influence of testing effects. The masculinity variables showed no significant differences on any of the independent variables. Thus Hypothesis 3 was supported in that experimental-group males tended to move towards warmth more than any other group and experimental-group males and females tended to move away from susceptibility to external influence, a category encompassing seven female-identified traits. Expected differences were not obtained over the other measures.

Hypothesis 4

The Present Self scale as a whole showed increases for both groups at post-test, or possible testing effects. Thus, Hypothesis 4 was not supported for the scale as a whole. Results for each of the three factors derived from the scale varied, however. There were no significant results for the activity/potency factor. The second factor, maturity/competence, again showed post-test score increases significantly higher than pre-test scores in both groups, but with the experimental group showing significantly greater positive changes than did the control group. Thus, the wilderness experience seemed to positively affect the participants' sense of competence and maturity. Results for the third factor, sociability, showed only that females over both groups rated themselves as higher on this factor than did males in both groups.

Hypotheses 5 and 6

The differences between Present Self and Future Self on activity/potency showed that differences diminished significantly from pre-test to post-test in both groups. The same was true of maturity/competence difference scores between the Present Self and Future Self, and also for Present Self and Ideal Self. On the sociability factor, however, the females in both groups showed smaller discrepancies than did the males between their present and future selves, as well as their present and ideal selves. It appears that the females in general feel they are as friendly, understanding and considerate as they will be in the future or would ideally like to be, while males feel that they would like to be more sociable. Therefore, hypothesis 5 was supported for the difference between Present and Ideal Self on the first factor, activity/potency, as well as the differences between Present and Ideal selves and Present and Future selves on the third factor, sociability. There were no significant pre- post-test differences in either group for the aforementioned factors.

Hypothesis 6 was not supported at all, as there were no significant differences between experimental and control group difference scores on each of the three semantic differentials as a whole, or each of the three factors contained therein.

CONCLUSIONS

Positive changes on many variables are reflected by general gains of the experimental group in mean scores from pre- to post-test. By looking at the many different kinds of stressful activities experienced by the participants, we can hypothesize which events may have precipitated the changes that reached statistical significance.

Self-Concept

The accomplishment of strenuous, difficult physical and psychological tasks, such as completing the 27-mile night hike, rappelling down the 85-foot cliff, and handling the snake, may have induced positive changes in scores on physical and personal identity and also on physical and personal behavior. Whether originally motivated to participate in the experience and learn about the difficulty of wilderness living or not, studetns were forced to develop new skills, skills that were important to their comfort and sustenance in the wilderness. Thus, the participants may have acquired new confidence in their ability to take care of themselves, as well as an increased sense of personal worth, adequacy, and competence. The concomitant weight loss and subsequent feelings of physical well-being resulting from several days' rest at home, as well as the recognition that they could perform physical tasks

beyond their expectations, may have positively affected students' perceptions of their physical appearance, health, and efficacy.

As adolescents, Wilderness participants were in the stage of psychosocial development characterized by striving for separation and individuation from their parents, without being fully prepared for autonomy and self-sufficiency. Faced with difficult challenges without direct family support, the adolescent Wilderness participant may have been forced to re-evaluate the importance of parental protection and guidance as a support system on which s/he could rely during periods of stress. Several adults and one or more of their children were participants on this trip, and in a large group testimony meeting, several spoke freely and with obvious emotion of the enhanced love and appreciation they felt for each other, possibly modeling positive changes in family relationships for the other participants. The strong emphasis on family unity and close family ties in the LDS religion may have also influenced the students to resolve to be better family members and realize or place a higher value on their importance to their families, thus positively influencing their family behavior and family identity scores.

As mentioned before, the Wilderness program emphasized the participants' individual relationship to a supreme being, encouraging prayer, meditation, and other forms of spiritual communication as resources for help in meeting the challenges of the trip and as a way of deriving greater confidence in their ability to cope with emotional and physical distress. Responses to the open-ended question at the end of the test (What do you think you gained from

Wilderness Trek? What effect has it had on your life?) revealed that most respondents named increased spirituality and communion with a supreme being as a major benefit of the trip. Thus, the participants probably felt more positively about their moral-ethical worth, their relationship to God, and their satisfaction with their religion, as well as their moral-ethical behavior, as a result of their experience.

The experimental group showed no statistically significant gains in the area of social self, encompassing the variables social identity, social behavior, and social self-satisfaction, a finding also reported by Nielsen (1975). Neither were gains found on the sociability factor of the Present Self scale of the semantic differential measures. It may be that the small-group format in which participants were encouraged to share their deepest feelings, as well as work together to accomplish a common goal, may have stimulated their awareness of their own interpersonal inadequacies, rather than promoting feelings of increased social and interpersonal adequacy and worth. In addition, students may have suffered from the "re-entry syndrome" commonly reported among wilderness stress group participants, in which students returning from their wilderness experience feel that the outside world fails to understand or appreciate the hardships which they have suffered and the accompanying psychological changes. Students may have felt anger and frustration at this lack of understanding and withdrew into themselves or into the safety of the group of wilderness "survivors". Thus, they may have felt little increase in their sociability with the outside

world. However, the students' perceptions of their future selves as more considerate, understanding, and friendly (the "sociability" factor), changed significantly after their experience, possibly as a result of students setting higher expectations for their social behavior in the future, with the confidence that they would be able to achieve this goal.

In addition, no statistically significant gains were found in the area of general self-satisfaction, including the variables moral-ethical, social, family, and personal self-satisfaction, a finding also reported by Wetmore (1969). It appears that participants may set higher standards for themselves in these areas after their wilderness experience, thus accepting themselves even less than they did before. However, a statistically significant positive change was noted in the area of physical self-satisfaction, indicating that students' feeling of physical accomplishment may have been so overriding that they met even their highest expectations in this regard.

It was also found that female participants in wilderness stress groups experienced a slight drop in self-critical ability. It may be that in programs of this type, which emphasize the use of praise, encouragement, and the overcoming of challenges, generate feelings of accomplishment and increased self-esteem that decrease participants' willingness or ability to be self-critical. The male participants, however, showed increased self-critical ability. Perhaps they found that their wilderness experinece revealed inadequacies in their functioning which, in the perspective of

their newly acquired insight and awareness, they could now accept more readily, while female participants, who may have been more protected from such extreme physical and psychological stress, may have been more positively affected by their ability to overcome challenges and thus become less self-critical immediately after their experience. This pattern of changes is puzzling and requires replication to confirm the results.

Sex Roles

All participants, including the adults, were subjected to activities designed to minimize their conventional sex and social roles. For example, all were required to scale a slick, steep sandstone rock face with the help of a rope, then rappel down the other side. Thus, students were forced to re-evaluate themselves in terms of how well they could handle the demands of wilderness, rather than on their social status or other external definitions of their own competence. As students learned that they could hike farther, run longer, and climb higher than they expected, gaining self-confidence, trust in their bodies, and feelings of independence, it may be that they became less susceptible to external influence as measured by the BSRI.

The experimental group males also increased significantly in warmth, contrary to Nielsen's (1975) finding that males in a structured, very stressful wilderness survival group decreased significantly in their ability to develop warm, supportive interpersonal relationships.

The breaking down of social roles in the group may have facilitated self-knowledge, self-disclosure and potential for positive change in wilderness group members, in a context of interpersonal warmth and support. Male and female instructors also modeled warm, considerate interactions in their relationships with each other and with the students. Since the pre-test means on this variable were substantially higher for the girls than the boys in both groups, it may be that the experimental group boys were more used to repressing or not expressing warm, tender feelings, which are generally not considered "masculine". Thus, the permissive, supportive atmosphere in the group may have freed them to respond to approach the female norm of being supportive and expressing warmth to other group members.

Semantic Differential Self-Evaluation Measures

Enhancement of the students' feelings of maturity and competence, as measured by the Present Self scale of the semantic differential, also occurred. This finding may have been another possible effect of the relaxation of students' defenses and increased opportunities for self-disclosure in the group setting, leading to personal insight and awareness, as well as the development of wilderness and interpersonal skills.

Several hypothesized changes did not occur. Although, as predicted, the experimental group showed mean increases in internality of locus of control and activity/potency on the Present Self scale of the semantic differential from pre-test to post-test, it was surprising that these changes did not reach statistical

significance. It may be that the tight structure of this program, featuring many stressful, unexpected activities with which the students were unprepared to cope, fostered students' trust in and dependence upon the instructors for their safety and well-being. This may have counterbalanced the students' perceptions of their own control over external events and their own potency. It was also hypothesized that the difference scores between the students' present and ideal selves would be significantly smaller for the experimental group than the control group from pre- to post-test. However, the mean scores for experimental group members' present and ideal selves on all three factors (activity/potency, maturity/competence, sociability) both increased slightly, thus showing little reduction in the difference score. Apparently, the accomplishment of difficult tasks helped Wilderness group members to feel more positively about their present functioning, but also motivated them to aspire to a higher level of ideal selfhood, thus maintaining the gap between their evaluations of their present and ideal selves.

Limitations

There were several limitations and design problems that deserve attention. First, it should be noted that the ratio of females to males differed markedly in the experimental and control groups. Although no experimental/control group interaction effects occurred on the pre-test means for the variables which reached statistical significance, a more equitable distribution of sexes within each group might have yielded different results.

Also problematic was the attitude of the experimental group towards the pre-testing, which was probably related to the high rate of attrition in this group. Although students' excitement at participating in a wilderness trip, and their subsequent restlessness and inattention are factors that could not be completely controlled, it is suggested that in the future, experimenters make it clear from the initial sign-up meeting that participants will complete personality measures as a part of the experience. The purpose of research on wilderness psychology should be explained briefly in general terms, and the test instruments themselves should not be so long that students become bored and distractible. Since the measures used in the present study took from 45 minutes to an hour to complete, many students lost interest and/or failed to complete them, contributing to the high rate of attrition in both the experimental and control groups.

The test-taking environment also differed between groups. The control group was assembled on time and tested in a quiet classroom in a high school, while the experimental group was tested in a large gymnasium, with students trickling in during the testing hour. Joggers running around a nearby track and other passers-by acted as further distractions. To focus experimental students' attention on the test-taking task, it is suggested that in the future, experimenters arrange for their subjects to meet in a separate classroom or smaller, quiet room where the testing can take place in a controlled atmosphere. Immediately afterwards, the students can be moved to the main activity area.

Another contributing factor to the significant positive changes observed may have been the post-survival "high" often observed immediately after the completion of a trip. Since the participants were post-tested only a few days after the termination of the program, their excitement and positive feelings about themselves may have been at a peak, and later may have gradually worn off, allowing them to view themselves and the effect of their wilderness experience more realistically and objectively. Post-testing a week or two later may have avoided this possible confounding variable.

The generalizability of the results to a population of adolescents as a whole should be viewed with caution, as the unique religious and cultural background of the LDS students undoubtedly affected the results. The emphasis in the LDS religion on continually trying to perfect oneself and continually striving for greater spirituality and self-discipline may have either diminished or accentuated the results in terms of self-esteem. For example, the self-satisfaction scores on the TSCS may have showed no significant change because the students may have set even higher goals after their experience than before, in their efforts to achieve higher levels of spiritual and personal functioning. Similarly, the positive feelings of closeness to God and greater reliance on a higher power for support in the wilderness may in part account for the change in moral-ethical behavior and identity scores. Also, the LDS emphasis on family love and unity, personal accountability for one's actions, independence, maturity, sociability,

and warmth for both men and women may have affected the results in all these areas. With regard to this study, we have no way of knowing the strength of this factor, whether it was significant or insignificant in terms of its effect on the students' reaction to their wilderness experience.

Recommendations for Future Research

Many pertinent questions were not addressed by this study, and many limitations of the experimental design and methodology could be avoided in further research. Issues deserving attention by future studies might include:

1. A comparison of wilderness stress programs with outdoor camping or recreation programs, to determine the relative importance of the outdoor environment and the stress component of the program in producing behavioral and/or attitudinal change.

2. Research on structured encounter grouping and other techniques of psychological change and their possible usefulness in wilderness programs expressly designed to effect behavioral and/or attitudinal change.

3. Research to determine the importance of different wilderness stress group formats -- the effects of programs stressing group interaction in overcoming challenges compared to programs stressing more individual initiative and independence; comparison of groups employing highly structured activities vs. groups with less structure; differential effects of wilderness stress groups of low, moderate, and high stress; whether wilderness stress groups lasting a few days, a week, or a month produce differential effects, etc.

4. Research on the type of training instructors receive as facilitators of change in their students, and what type of training is most effective in inducing change.

5. The use of psychological testing at different phases of the experience to determine possible points at which significant psychological change occurs in a wilderness stress program.

6. Research in which significant others rate the students on attitudinal and behavioral measures, together with self-ratings by the students, in order to discover how objectively the students

view themselves and whether these self-perceived changes are evident to others.

7. Follow-up testing months or year later should be done to determine whether changes are long-lasting, and if not, when the effects of the experience begin to wear off.

8. In order to control for motivational factors, a control group consisting of students who had signed up for the wilderness stress course, but were not to go until a later time period, could be tested and compared to the experimental group.

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APPENDICES

APPENDIX A

WILDERNESS TREK - COURSE DESCRIPTION

Day 1 - Students arrive at the Richards P.E. building at 8 a.m. carrying their clothing and equipment. The head instructor delivers a brief speech on the power of the trip and the impact it can have on one's life, with an emphasis on learning about oneself and helping others make it through. Students are then divided into five groups, with two instructors at the head of each. Each person must give their name, a little personal information (age, interests, etc.), and to help others remember their name, must rhyme it with an adjective describing themselves. Everyone has an opportunity to repeat everyone else's name and adjective. Afterwards, instructors inspect each student's duffel bag to make sure proper equipment and clothing is being taken, and nothing that is not on the official list is brought (food, candy, makeup, etc.). Each group is numbered, and each student is numbered (for ease in "counting off" later and making sure everyone in the group is present). The groups board two buses and ride for an hour and a half to their destination, a mountainous wilderness area in central Utah. The different groups are let off at different points along the way (within about a mile radius). Students in each group then participate in a Blind Walk, in which they are blindfolded for more than four hours and led through a forest with low-hanging branches, fallen logs, steep

climbs and sharp drops in terrain, and so on. To promote maximum stress, the Blind Walk is conducted in complete silence. The students are subjected to different types of unexpected stressful activities, such as crawling through mud and being forced to slide down steep snowbanks, which confuses and disorients the students and breaks down their expectations for the trip. The blindfolds are finally removed and groups begin to hike to base camp about 6 p.m. Students hike all night for 25 miles to their destination, over rough, rocky trails that drop steeply on one side into a cascading river. After reaching a dirt road about midnight, students must complete a one-mile stretch alone. After all have done so, the exhausted, hungry group continues to the campsite, which is reached between 3 and 6 a.m. They have eaten no food since 8 a.m., and will not eat again until 8 a.m. the next morning.

Day 2 - Students receive one orange for breakfast. A morning group meeting is held, in which all students are required to be in attendance. The head instructor stands stroking a sheep and gives a short talk on the history of that particular sheep, her name, approximate age, and her ultimate purpose as food for man. As the group watches, he cuts the sheep's throat, letting the blood run into a hole in the ground and holding it until it stops jerking. He then twists the head off and enlists the aid of students in hanging the carcass from a tree, skinning it, tanning the hide and preparing sausage. All students, no matter how squeamish or revolted they are by this process, must participate in one or more of these activities. The finished food products are eaten for dinner that

evening, out of pop cans that students use for cup, bowl, and/or plate, with wooden spoons they have carved themselves. A fireside program is held in the evening, in which songs are sung by the group, with brief talks and skits by the instructors. Afterwards, students are encouraged to seek out spiritual experiences for themselves through meditation and/or prayer.

Day 3 - Students breakfast on cracked wheat, eating out of their pop cans with their wooden spoons. Everyone packs up their own gear and helps pack the group equipment, then hikes three miles to a sandstone canyon, where they participate in rappelling, crossing streams on tightropes, falling backwards into a fireman's net as a trust exercise, and so on. Frightened or hesitant students are talked through the activity, with the physical assistance and/or verbal encouragement of enthusiastic fellow students. Later, all students must sit silently in a circle while a snake slithers across their laps. Students reluctant to touch the snake will receive nonverbal direction and encouragement from the director until they are able to drape the snake around their necks. Students then hike five more miles to camp. After arriving, they treat their blisters, prepare dinner, and attend small group meetings around a campfire, where each person talks about their reasons for enrolling in the course, what they like about each other, and what they would like to share of themselves. A deep feeling of closeness is usually developed at these campfires, and many students cry as they express personal, intimate feelings that probably would not be shared under other circumstances. Afterwards, students often remain to talk in

small groups or one-to-one with people they feel close to or would like to get to know better, while others turn in for the night.

Day 4 - Optional religious services are held in the morning, including inspirational talks by members of the group selected beforehand by the instructors, group singing of hymns and wilderness songs, and so on. Since most of the students are LDS, and the songs are strongly tied to the Mormon culture and heritage, many of the students are deeply moved. Afterwards, students are directed to find a solitary, quiet spot in the surrounding area where they can think, pray and/or meditate upon the wilderness experience and their own lives, and remain alone for several hours. Students then return and prepare dinner. Later, a "testimony meeting" is held, where group members are encouraged to stand up and share the insights they have gained on "solo" as well as anything else they would like to say. So eager are the participants to talk about their experiences that these meetings usually last from three to four hours.

Day 5 - Students load the back-up truck with their gear and the group equipment. Each person is given an orange, and then the students are required to run a final three miles to a pick-up point at the mouth of the canyon. Buses transport them back to the BYU campus, where the trip reunion, usually several days later, is planned. At these reunions, food is brought and eaten, pictures are exchanged, and a slide show of their particular trip is shown by the instructors. This terminates the experience.

APPENDIX B

A COMPARISON OF WILDERNESS RESEARCH USING 10 SUB-SCALES OF THE TENNESSEE SELF-CONCEPT SCALE

Table A

A Comparison of Wilderness Research Using 10 Sub-Scales of Tennessee Self-Concept Scale

	Wetmore (1969)		BYU (1971-73)		Nielsen (1975)		Nye (1975)		Risk (1976)	Pomba (1979)	
	Pre-post	Post-to-Follow-up (6 months)	Pre-post	Follow-up (1 year)	Pre-post Traditional	Pilot	Pre-post	Follow-up (3 months)			
Identity	+		+	+		+ (♀)	+	+		+	
Self-satisfaction		+	+	+	+	+ (♀)	+	+ (♀)	+		
Behavior	+		+	+	+	+ (♀)	+	+		+	
Physical self	+		+	+	+ (♀)	+ (♀)	+ (♂)	+	+	+	
Moral-ethical self	+	+	+	+	+	+ (♀)	+	+	+	+	
Personal self	+	+		+	+	+ (♀)	+	+ (♀)			
Family self	+		+	+	+ (♀)	+ (♀)	+	+		+	
Social self	+		+		+		+	+			
Total positive	+		+	+	+	+ (♀)	+	+ (♀)	+	+	
Self-criticism	+										

Identity	+
Self-satisfaction	+
Behavior	+
Identity	+
Self-satisfaction	
Behavior	+
Identity	+
Self-satisfaction	
Behavior	+
Identity	+
Self-satisfaction	
Behavior	+
Identity	
Self-satisfaction	
Behavior	

♂ = males only

♀ = females only

\+ = statistically significant gains noted

APPENDIX C

QUESTIONNAIRE FORMAT

MICHIGAN STATE UNIVERSITY
Department of Psychology

DEPARTMENTAL RESEARCH CONSENT FORM

1. I have freely consented to take part in a scientific study being conducted by: Janiece L. Pompa

   under the supervision of: John R. Hurley

   Academic Title: Ph.D.

2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.

3. I understand that I am free to discontinue my participation in the study at any time without penalty.

4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.

5. I understand that my participation in the study does not guarantee any beneficial results to me.

6. I understand that, at my request, I can receive additional explanation of the study after my participation is completed.

SIGNED: _____

DATE: _____

Name _____

Sex _____

Age _____

Date _____

The tests in this packet are designed to help you find out about yourself, and to help in research about how your wilderness experience affects you. Read each item carefully and answer as honestly as you can. Do not leave any items unanswered.

INSTRUCTIONS

The purpose of the following scales is to assess your feelings about three general aspects of yourself. On the first sheet you will rate yourself as you are now; on the second sheet you will rate yourself as you believe you will be in the future (5 to 10 years from now) and on the third sheet you will rate yourself as you would most like to be (your ideal self).

You will be rating each of these aspects of yourself on a set of scales. The aspect of yourself to be rated is listed at the top of the page, followed by the scales. Each scale is in this form:

happy / / / / / / / / sad

Place a check mark somewhere in the spaces to indicate which end of the scale best applies to that aspect of yourself.

For example, when on the first sheet you are rating yourself as you are now and feel that "happy" is very characteristic of you, place an "X" as follows:

happy / X / / / / / / / sad

If you feel that "sad" is very characteristic of you, place an "X" as follows:

happy / / / / / / / X / sad

If you feel you are moderately or somewhat happy or sad you would place an "X" in the intermediate spaces. For example:

happy / / X / / / / / / sad

Use the spaces between the adjectives to indicate how close to each end of that scale you feel you are.

If you feel that the aspect of yourself that you are rating is neutral on the scale, or if both sides of the scale apply, or if the scale seems completely irrelevant to that aspect of yourself, then mark the middle of the scale as your answer.

IMPORTANT:

1. Place your check marks in the middle of the space you choose.
2. Just check once for every scale.
3. Be sure to check every scale.
4. Do not try to remember how you checked earlier items. Make each scale a separate, independent judgement.
5. Do not puzzle over individual judgements. Give your first impressions.

MYSELF AS I AM NOW

independent	/ / / / / / / /	dependent
persuasive	/ / / / / / / /	unpersuasive
inconsiderate	/ / / / / / / /	considerate
unenergetic	/ / / / / / / /	energetic
self-reliant	/ / / / / / / /	not self-reliant
adventurous	/ / / / / / / /	unadventurous
impractical	/ / / / / / / /	practical
low in self-confidence	/ / / / / / / /	self-confident
agreeable	/ / / / / / / /	disagreeable
incapable	/ / / / / / / /	capable
foolish	/ / / / / / / /	wise
unassertive	/ / / / / / / /	assertive
leader	/ / / / / / / /	follower
immature	/ / / / / / / /	mature
withdrawn	/ / / / / / / /	outgoing
understanding	/ / / / / / / /	not understanding
irresponsible	/ / / / / / / /	responsible
unhelpful	/ / / / / / / /	helpful
friendly	/ / / / / / / /	unfriendly
uncooperative	/ / / / / / / /	cooperative
undependable	/ / / / / / / /	dependable
resourceful	/ / / / / / / /	unresourceful
passive	/ / / / / / / /	active
ineffective	/ / / / / / / /	effective

MYSELF AS I AM NOW (continued)

incompetent	/ / / / / / / /	competent
warm	/ / / / / / / /	cold
strong	/ / / / / / / /	weak
ambitious	/ / / / / / / /	unambitious

MYSELF AS I WILL BE IN THE FUTURE (5 to 10 years from now)

independent	/ / / / / / / /	dependent
persuasive	/ / / / / / / /	unpersuasive
inconsiderate	/ / / / / / / /	considerate
unenergetic	/ / / / / / / /	energetic
self-reliant	/ / / / / / / /	not self-reliant
adventurous	/ / / / / / / /	unadventurous
impractical	/ / / / / / / /	practical
low in self-confidence	/ / / / / / / /	self-confident
agreeable	/ / / / / / / /	disagreeable
incapable	/ / / / / / / /	capable
foolish	/ / / / / / / /	wise
unassertive	/ / / / / / / /	assertive
leader	/ / / / / / / /	follower
immature	/ / / / / / / /	mature
withdrawn	/ / / / / / / /	outgoing
understanding	/ / / / / / / /	not understanding
irresponsible	/ / / / / / / /	responsible
unhelpful	/ / / / / / / /	helpful
friendly	/ / / / / / / /	unfriendly
uncooperative	/ / / / / / / /	cooperative
undependable	/ / / / / / / /	dependable
resourceful	/ / / / / / / /	unresourceful
passive	/ / / / / / / /	active
ineffective	/ / / / / / / /	effective

MYSELF AS I WILL BE IN THE FUTURE (continued)

incompetent	/ / / / / / / /	competent
warm	/ / / / / / / /	cold
strong	/ / / / / / / /	weak
ambitious	/ / / / / / / /	unambitious

MYSELF AS I WOULD LIKE TO BE

independent	/ / / / / / / /	dependent
persuasive	/ / / / / / / /	unpersuasive
inconsiderate	/ / / / / / / /	considerate
unenergetic	/ / / / / / / /	energetic
self-reliant	/ / / / / / / /	not self-reliant
adventurous	/ / / / / / / /	unadventurous
impractical	/ / / / / / / /	practical
low in self-confidence	/ / / / / / / /	self-confident
agreeable	/ / / / / / / /	disagreeable
incapable	/ / / / / / / /	capable
foolish	/ / / / / / / /	wise
unassertive	/ / / / / / / /	assertive
leader	/ / / / / / / /	follower
immature	/ / / / / / / /	mature
withdrawn	/ / / / / / / /	outgoing
understanding	/ / / / / / / /	not understanding
irresponsible	/ / / / / / / /	responsible
unhelpful	/ / / / / / / /	helpful
friendly	/ / / / / / / /	unfriendly
uncooperative	/ / / / / / / /	cooperative
undependable	/ / / / / / / /	dependable
resourceful	/ / / / / / / /	unresourceful
passive	/ / / / / / / /	active
ineffective	/ / / / / / / /	effective

MYSELF AS I WOULD LIKE TO BE (continued)

incompetent	/ / / / / / / /	competent
warm	/ / / / / / / /	cold
strong	/ / / / / / / /	weak
ambitious	/ / / / / / / /	unambitious

Why did you sign up for "Wilderness Trek"? What do you hope to gain from this experience?

What do you think you gained from "Wilderness Trek"? What effect has it had on your life?