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THE IMPACT OF PROJECT ADVENTURE
ON THE SELF CONCEPT OF ADOLESCENTS

BY

SANDRA I. JERSTAD

A thesis submitted
in partial fulfillment of the requirements for the
degree Master of Science, Major in Health
Physical Education, and Recreation
South Dakota State University
1981

THE IMPACT OF PROJECT ADVENTURE
ON THE SELF CONCEPT OF ADOLESCENTS

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Thanks so much,

SIJ

CONFRONT THE ESSENTIAL FACTS OF LIFE, LEARN WHAT THEY
HAVE TO TEACH, IN ORDER TO NOT, WHEN IT COMES TIME TO
DIE, DISCOVER THAT ONE HAS NOT LIVED.

Thoreau

DEDICATION

THIS STUDY IS DEDICATED TO MY CREATOR, WHO HAS MORE
ADVENTURE PLANNED FOR MY LIFE THAN I CARE TO IMAGINE,
WHO HAS GIVEN ME MORE ADVENTURE IN MY LIFE THAN I HAD EVER
DARED HOPE FOR AND SUSTAINED ME THROUGH IT ALL, AND WHO BIDS
ME TO CONTINUE TAKING THE LEAP OF FAITH.

TABLE OF CONTENTS

CHAPTER	Page
I. INTRODUCTION	1
Significance of the Study	1
Statement of the Problem	2
Hypothesis	3
Scope of the Study	3
Limitations	4
Definition of Terms	4
II. REVIEW OF LITERATURE	6
Values of Risk-related Ventures	6
Project Adventure	9
Purposes of Project Adventure Programs	9
Research Involving Project Adventure Programs	10
Outward Bound	14
A Critique of Methodological Approaches in Outward Bound Studies	14
Research Involving Outward Bound Programs	16
Other Risk-related Areas	18
Critiques of Literature Review of Risk-related Programs	19
Research Involving Risk-related Programs	21
Summary	23
III. METHODS AND PROCEDURES	25
Research Design	25
Subjects	26
Testing Procedures	26

CHAPTER	Page
Training Program	27
Statistical Procedures	36
IV. ANALYSIS AND DISCUSSION OF RESULTS	
Organization of the Data for Analysis	49
Presentation of Results	50
The Self Criticism Scale	51
The Net Conflict Scores	63
Total Conflict	63
Total Positivity	64
The Identity Scale	64
Self Satisfaction	65
Behavior	65
Physical Self	65
Moral-Ethical Self	65
Personal Self	66
Family Self	66
The Social Self	66
Discussion of the Results	67
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	75
Findings of the Study	75
Conclusions	76
Recommendations	77
LIST OF REFERENCES	79

APPENDICES	Page
A. THE NATURE AND PURPOSE OF THE TENNESSEE SELF CONCEPT SCALE	82
B. DEVELOPMENT OF THE SCALE	83
C. THE ADMINISTRATION OF THE TENNESSEE SELF CONCEPT SCALE . .	84
D. DATA ON THE VALIDITY AND RELIABILITY OF THE TENNESSEE SELF CONCEPT SCALE	85
E. COVER LETTER SENT TO ALL PARENTS	87
F. QUESTIONNAIRE FOR PARENTS OF PARTICIPANTS IN PROJECT ADVENTURE	88
G. A SUMMARY OF RESPONSES TO THE LETTER SENT TO PARENTS . . .	89
H. DAILY SCHEDULES OF PROJECT ADVENTURE CLASSES	92
I. RAW DATA	95
J. THE NATURE AND MEANING OF THE SCORES OF THE TENNESSEE SELF CONCEPT SCALE	101
K. NORM GROUP RAW SCORE: MEANS, STANDARD DEVIATIONS AND RELIABILITY COEFFICIENTS: TENNESSEE SELF CONCEPT SCALE	107

LIST OF TABLES

Table	Page
I. Pre-test Representative Values for Self Concept Scores for Males	52
II. Pre-test Representative Values for Self Concept Scores for Females	53
III. Pre-test Representative Values for Self Concept Scores for All Students	54
IV. Post-test Representative Values for Self Concept Scores for Males	55
V. Post-test Representative Values for Self Concept Scores for Females	56
VI. Post-test Representative Values for Self Concept Scores for All Students	57
VII. Comparison of Sampled Mean Values for All Students (N = 99) With the Tennessee Self Concept Scale Normal Values (N = 626)	58
VIII. Mean Differences in Self Concept Scores for Males (N = 63) During 12 Days of a Project Adventure Program	59
IX. Mean Differences in Self Concept Scores for Females (N = 36) During 12 Days of a Project Adventure Program	60
X. Mean Differences in Self Concept Scores for All Students (N = 99) During 12 Days of a Project Adventure Program	61
XI. Comparison of Tennessee Self Concept Scale of Total Positivity Mean Values in the High (N = 10) and Low (N = 10) Groups	62

LIST OF FIGURES

FIGURE	Page
I. BASIC KNOT-TYING SKILLS	30
II. CARABINERS, CLIPS AND KNOTS	32
III. BELAYING	33
IV. THE TWO-LINE BRIDGE	35
V. THE LOG LADDER	37
VI. RAPPELLING	38
VII. CLIMBING THE 60-FOOT PLATFORM, PART I	39
VIII. CLIMBING THE 60-FOOT PLATFORM, PART II	40
IX. CLIMBING THE 60-FOOT PLATFORM, PART III	41
X. CLIMBING THE 60-FOOT PLATFORM, PART IV	42
XI. CLIMBING THE 60-FOOT PLATFORM, PART V	43
XII. RIDING THE ZIP WIRE, PART I	44
XIII. RIDING THE ZIP WIRE, PART II	45
XIV. RIDING THE ZIP WIRE, PART III	46
XV. RIDING THE ZIP WIRE, PART IV	47
XVI. RIDING THE ZIP WIRE, PART V	48

CHAPTER I

INTRODUCTION

Significance of the Study

High-risk adventure courses are a new and dynamic part of physical education programs in many parts of the country. Many studies have been completed to assess the effect of physical activities on the integration of the personality (Strutt, 1966). An initial course, Outward Bound, was an outgrowth of stringent programs developed by the British Navy during World War II. Because the Navy had found their men not well prepared to handle crises or stressful situations, a solution to this problem was sought by establishing the first Outward Bound School. The specific purpose was to introduce physical challenge in its training of young men as means of developing their character. By being pushed to their physical limits within the safety of a program, the men improved greatly in their physical stamina and their determination to survive. Subsequent wartime experience established a greater survival rate for graduates of the Outward Bound School (Clifford and Clifford, 1967).

Project Adventure, the focus of this study, is an outgrowth of Outward Bound Schools. Project Adventure was originated in Massachusetts in 1970-71 (Rohnke, 1977). The objectives of Project Adventure are to facilitate learning in the following manner:

1. Increase the participant's sense of personal confidence.
2. Increase the mutual group support for individual participants.
3. Develop increased levels of agility and physical coordination.
4. Develop increased joy in the physical self and in being with others.
5. Develop increased oneness with the natural world.

The Project Adventure authors claim participants will experience a heightened sense of community and an increased ability to solve problems and make decisions (Rohnke, 1977). Studies have been completed which have indicated positive changes in the self concept of participants (Iida, 1976; Webster, 1978). The majority of those who have participated in Project Adventure have improved significantly in their self concept. Of concern to any physical educator should be the effect of a program such as Project Adventure on the students.

Statement of the Problem

The purpose of this study was to describe the effect of participation in an advanced Project Adventure Class on the self concept of high school students. Twelve subscales of the Tennessee Self Concept Scale were compared before and after the class and the mean differences were evaluated statistically to ascertain whether there was a significant change in: Self-Criticism,

Net Conflict, Total Conflict, Total Positivity, Positive Identity, Self-Satisfaction, Behavior, Physical Self, Moral-Ethical Self, Personal Self, Family Self, and Social Self.

Hypotheses

It was hypothesized that there would be a significant positive change in the self concept of adolescents after they experienced the class in Project Adventure. Furthermore, it was hypothesized that females would exhibit a more positive change in their self concept than males, demonstrated by showing a significant change in more subscales than the males from the pre-test to the post-test.

Scope of the Study

This study was conducted at a high school during the 1979-1980 school year. Data were collected from Project Adventure classes held in the spring semester. Ninety-nine students, 36 female and 63 male, from the five advanced classes served as subjects for the study. Each student had participated in a beginning Project Adventure Class, which was a prerequisite for the advanced class. Each class met five days a week for 12 days and lasted approximately 45 minutes. The classes were held at the Project Adventure area at the high school. The day before students started activities

for the class, May 1, the Tennessee Self Concept Scale was given. This test was also given on May 20 after the students finished the course. Administration of the Tennessee Self Concept Scale took approximately 12 minutes.

Limitations

The limitations of this study are:

1. Some of the students who participate in Project Adventure volunteer to do so, and thus may be well-motivated to gain the most benefits. A positive orientation and openness to the Project Adventure program could provide for a greater change in self concept.
2. Some students have to take the class because it is the only one available, and therefore these students may not be well-motivated to participate in the activities. They may even be antagonistic, resisting participation and thus feeling negative about their self concept due to conflict and hostility.
3. There may be other factors operant in the lives of the participants which would change their self concept level other than their participation in Project Adventure.
4. The test used is often influenced by the day's mood, present needs, and one's level of self-knowledge. Many factors having nothing to do with Project Adventure could affect a student's performance on the Tennessee Self Concept Scale.
5. The norm group is very diverse, while the Brookings group is narrow in scope. Differences in self concept scores may result.

CHAPTER II

Definition of Terms

Three terms are defined for this study:

Norm group. The norm group encompassed 626 subjects with a wide range in age, education, socio-economic status, and positions. This group was tested by Fitts (1965) to form a comparative scale of normal values for the Tennessee Self Concept Scale.

Risk recreation. Activities which provide challenge in the form of physical danger, performed in the natural environment, belong to the area called risk recreation.

Self concept. Self concept is the total perception of oneself as a person, including one's self confidence, affiliation, trust level, and ability to perform.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to describe the effect of participation in an advanced Project Adventure Class on the self concept of high school students. A review of literature is presented in the following areas: the values of risk-related ventures, purposes and research of Project Adventure programs, critique and research of Outward Bound Programs, and critiques and research of risk-related and cooperative-based programs.

Values of Risk-related Ventures

Risk recreation is characterized by the excitement, elation, and, in some cases, fear it produces among its participants (Alvarez, 1967). Rock climbing, white water canoeing, and wilderness survival trips are some of the activities engaged in by enthusiasts. Other potentially dangerous experiences include hang gliding and motorcycle racing (Axthelm, Cook and Stadtman, 1975). With all the risk, excitement and danger, the question "why?" is raised.

A number of authors have speculated on the various reasons for risk recreation and the potential benefits. Alvarez (1967) claims it enhances one's ability to be intelligent, skillful, intuitive, subtle and controlled, insisting risky games resemble a sharp close-up of life, where essentials are defined and concentrated. There is great pleasure in doing something difficult which requires concentration and resourcefulness plus effort. Axthelm, Cook and

Stadtman (1975) in a documentation of dangerous types of wilderness experiences, agree that the quest for control is central to the experience, and also express the need for doing rather than thinking in today's passive, mind-oriented society.

Several studies mentioned the search for a peak experience as the motivating force and as having been found in risk recreation. Scott (1974) has especially been interested in the psychological implications of wilderness experience, finding many people have experienced a heightened sense in wilderness settings, and speculating that this would not be true of experiences in more degraded environments. Hellwig (1978) agreed by stating that self-identity is one of the primary concerns and needs of man. Self-identity is enhanced through peak experiences, opportunities to live fully and joyfully, and this can happen when one accomplishes the seemingly impossible. Miles (1978) also cited the peak experience of life as one of the most important benefits of participation in risk recreation. The benefits, according to Miles, are also the lure to risk recreation. These included the beauty of the wilderness, the thrill of uncertainty, and the satisfaction from meeting and conquering a physical and spiritual challenge. The emotional release of shouting, laughing, crying and sharing intense personal experiences with other people are further benefits. Miles speculates that in nature one finds a sense of solidarity with the world, a knowledge of one's mortality and limitations and of the vastness of the world. Many factors motivate people to participate in high risk ventures.

Some come to test themselves, some to impress others, some for the love of challenge, some for exploration of inner and outer worlds, some to encounter others and self, some to smell the flowers, some to share experiences and transcend human barriers. In the end, Miles contended the greatest values may be in having to decide and learning to accept.

According to Meier (1977), the values of high risk recreation include the development of self concept, including self-reliance and self-confidence, the development of environmental awareness, aesthetic appreciation, cooperation, physical fitness, the ability to deal with stress, tenacity, and extended humility. Meier, who claimed that risk recreation is of ultimate worth, insisted people engaged in it for the love of challenge, self-testing, camaraderie, exploration, aesthetics, and communion with the world of nature.

Dickey (1978) agreed with Meier on the values and needs for risk recreation, also examining the carry-over value regarding academic performance, which demonstrated that low-achievers were more motivated to learn, and did better in school. According to Dickey, risk programs have been used successfully for women in prison, juvenile delinquents, people with mental problems, and disturbed children.

Shreyer, White, and McCool (1978) and McAvoy (1978) were in agreement with Meier and pointed out that risk recreation can produce a healthy, stimulating stress which can be a positive life force. McAvoy emphasized the leadership aspect of risk recreation.

Project Adventure

Project Adventure began in the academic year 1970-71 in Hamilton, Massachusetts at the Hamilton-Wenham Regional High School (Rohnke, 1974). Several members of the faculty, administration, and student body put together a proposal to incorporate principles of Outward Bound in public education. Funding was secured through Title III of the Elementary and Secondary Education Act. The project continues to be a part of the Hamilton-Wenham Regional School District and advisors from the project work with six Massachusetts school systems on a sustaining basis.

Purposes of Project Adventure Programs.

Several central aims of Project Adventure are proposed by Rohnke (1974), Lentz, Seidman, Sentkowski, and Smith (1974), and Webster (1978) in their reports on the program.

1. Confidence. Project Adventure seeks to increase the participant's sense of personal confidence, through challenging new activities.
2. Cooperation. An effort is made to increase mutual support within a group.
3. Coordination. Another objective is to develop an increased level of agility and physical coordination.
4. Attitude. Project Adventure attempts to develop an increased joy in one's physical self and in being with others.
5. Identification. A further aim is to develop an increased

familiarity and identification with the natural world.

6. Integration. The program seeks to recognize different aspects of the personality: physical, emotional, social, intellectual and aesthetic.

As a result of Project Adventure, it is postulated that many benefits might be derived by those who engage in the activities. Participation in Project Adventure with the support from classmates seems to enable students to enter more fully and enthusiastically into the process of living. According to Rohnke (1974), there was evidence that there was a significant positive carry-over from the experience of successfully completing a demanding problem.

Research involving Project Adventure Programs.

Two specific studies of Project Adventure have been researched by Fersch and Smith (1972, 1973) in the form of quantitative evaluations. In the first study 224 sophomores who engaged in Project Adventure at Hamilton-Wenham Regional High School were evaluated after the first year. The subjects (120 males and 104 females) represented an average population of small town/suburban students from a slightly higher than average socio-economic background. The following six tests were administered:

1. The Tennessee Self Concept Scale. The Tennessee Self Concept Scale consists of 100 items designed to measure self concept in the dimensions of physical self, moral self, total positivity, positive identity, positive behavior, self-criticism, and family self.

2. The School Climate Survey. The School Climate Survey,

a test based on David McClelland's Classroom Climate survey (Rohnke, 1974), measured students' attitudes toward the school as a whole in the areas of power, achievement, affiliation, and apathy. The latter dimension, apathy, was Fersch and Smith's own addition.

3. The Independent School Association's Student Description Form. The Independent School Association's Student Description Form evaluated students on a scale of one to five on participation in discussion, involvement in classroom activities, pursuit of independent study, evenness of performance, critical and questioning attitude, depth of understanding, personal responsibility, and consideration for others.

4. A questionnaire. The questionnaire was designed to measure the kinds and amount of students' leisure time activities, attitudes toward the Project, and plans for the future.

5. The American Association of Health, Physical Education, and Recreation Test. The AAHPER Test of Physical Fitness was administered along with a 12 minute running test adapted from aerobic exercises.

6. The Rotter Scale of Internal vs. External Control of Reinforcement. The Rotter Scale measured the degree of perceived external control.

The evaluations were done by the students and by their teachers in October, 1971, and in June, 1972. A control group was not used. The results suggested that:

1. School climate. Although girls showed a slight

improvement in teacher warmth and organizational clarity, the only significant change ($p < .001$) was an over-all decrease in general enthusiasm. Fersch and Smith noted that other factors besides the influence of Project Adventure may have been responsible for this change in general enthusiasm.

2. Physical self. Significant improvement ($p < .001$) was recorded on sit-ups for everyone, on pull-ups for males, on the 300 yard run for females, and on the 12 minute run for everyone.

3. General self concept. The Rotter Test was examined and a significant difference between the pre-test and post-test was found. On the Tennessee Self Concept Scale, there was a significant decrease ($p < .001$) in total conflict for boys. The girls showed a significant change (level not given) in the areas of Self-criticism, Total Positivity, Positive Identity, Positive Behavior, Moral Self, and Family Self.

4. Attitudes toward Project Adventure. This area was not statistically measured, but an increased interest in the project was noted by the students' willingness to fill out reports in a complete form.

5. Sex differences. Summarizing the differences in self concept between the sexes through casual observation (no statistical analysis was conducted), the females improved more than the males. Personal opinions of science and English teachers were that the female had changed in a positive direction more than the male, and had experienced a greater change in depth of understanding and

evenness of performance.

In general, the quantitative data indicated overall positive change in self concept for the sophomore class. The students felt they had more self-confidence, stemming from successful completion of difficult tasks. The results from the questionnaire indicated that students had a growing awareness of opportunities for helping others. The boys showed a significant ($p < .001$) decrease in total conflict, demonstrated in an increase zest for life.

Several possible reasons were suggested which might explain the results showing that the girls demonstrated more positive self concept change than the boys. First it was suggested that girls generally perform better in school. Another reason given was that males are usually thought to be better at outdoor activities than females. A third possibility was that the kind of attention the girls were given was different from that which the boys were given.

Fersch and Smith (1973), in a replication of their earlier study, found similar results the following year. The subjects (231 sophomores, 108 females and 123 males), were involved in situations of personal risk. As a result, they were found to have an enhanced self concept and to have improved their ability to cooperate with others. Also, they were improved in their ability to take initiative. Thus, the proposed goals of Project Adventure were realized. Fersch and Smith also noted that parents' responses were even more favorable in the second year and that positive comments

were received from participants on self-evaluations. Comparing the two studies, there was a greater change in the students' self concepts after the first year of Project Adventure. In both years, the girls' scores on Positive Identity and achievement motivation increased significantly ($p < .001$).

In summary, Project Adventure courses have been taught in many parts of the country. The main objectives of these programs are involving students emotionally in their education through experiences which involve risk, personal danger, and group cooperation. On the basis of the two studies examined, the participants' level of self-confidence and trust, and consequently the total self concept, has been enhanced.

Outward Bound

Of other risk-related areas, the program called Outward Bound is the earliest program and the one most frequently cited and studied (Tapply, 1977). Kurt Hahn, a German-born educator whose philosophy strongly emphasizes experiential learning, developed the program. The means used in Hahn's program are wilderness survival, training the skills, and group living, each having a purpose of encouraging greater self-knowledge and confidence. Kahn's program also seeks to generate feelings of sensitivity and responsibility for others.

A critique of methodological approaches in Outward Bound studies. Problematic in the examination of Outward Bound has been

the methodology of research approach. Godfrey (1974) discussed his findings in a study of literature stating that if Outward Bound programs are approached in an experimental way, there must be guards against threats to internal and external validity. Threats to internal validity may be from: (a) maturation, the individuals having grown older at the time they take a retest; (b) testing, taking the test once helps the second time around; and (c) selection of individuals, the control group, if used, must be very similar to the test group.

The degree to which the results of the study can be generalized to another group is said to be the external validity of the study. In studies of Outward Bound and related programs, several threats to external validity exist: (a) perhaps the group studied is not representative of a wider population; (b) perhaps the interpretation of personal characteristics with the experience will change one ethnic group and not another; (c) maybe students behave differently because they know they are in a test situation (the Hawthorne effect); and (d) perhaps students are over-reacting to a novel situation.

In addition, Godfrey discussed testing tools and results. A number of different tools are used, but the Tennessee Self Concept Scale was used most frequently. Godfrey accused poor testing procedures and poor research methods for having hindered quality examination for many programs. He concluded by stating that even the imperfectly constructed research projects have yielded pertinent,

helpful information, and that overwhelming evidence demonstrates that Outward Bound programs are having a positive impact in the lives they touch.

Research Involving Outward Bound programs. Clifford and Clifford (1967) studied the Outward Bound program and found it consisted of activities which seek to challenge and push individuals to their limits. Included in the Colorado mountain wilderness programs were early morning baths in icy streams, running through rough terrain, axemanship, rock climbing, and a solo experience in the wilderness. In an inquiry about the effect such experiences would have, Clifford and Clifford hypothesized that the experience of being challenged to the limit of one's capacities will result in increased feelings of self-worth and competence. The subjects were ages 16 through 21, and of the 50 boys enrolled, complete data were gathered on 36. Four self-evaluatory tests were given. The Self-Rating Scale and the Self-Description Scale both showed a significant change ($p < .05$) in a positive direction. The group was divided into lower and higher self concepts at the initial testing, and it was shown in the testing that the bulk of change came from those boys with a relatively lower self-rating.

When a third test, the Ideal Description Scale was given, no significant differences ($p > .05$) were found, showing the ideal image of self did not vary through the experience. Also, a break-down due to age revealed no significant differences ($p > .05$) between age groups when compared on any of these three tests. A fourth test, Semantic

distances, compared all concepts to the concept of self. Only two of the 14 concepts were found to be significantly different ($p < .05$). For the most part, Clifford and Clifford found their hypothesis was supported by their findings. Overall changes in the self concept did take place in the appropriate direction and discrepancies between the self and the ideal-self were reduced.

In another study done by Vander Wilt and Klocke (1971), females showed a significant change in response to the Outward Bound program compared to males, who did not show a specific change. Before and after the group of 10 men and 10 women, ages 18 to 22, became involved in Minnesota's Outward Bound center at Ely, Minnesota, they took the Personal Orientation Inventory, a 150-question test consisting of two-choice items. It was found that the women changed significantly ($p < .01$) on 10 of the levels, thus moving close to the ideals of a self-actualizing person as defined by Shostrom (1968). In conclusion, the authors felt this experiment indicated that college students need new and innovative methods of higher education to challenge them.

Betty Strutt (1966) examined the effects of Outward Bound programs on females by testing working girls (86 subjects) sponsored by their place of employment. Similar girls were found to use as a control group. All the girls completed the Sixteen Personality Factor Questionnaire, Forms A and B. Many changes were recorded after the second testing. The girls had become significantly ($p < .01$) more stable and felt they were significantly ($p < .05$) more confident

and more dependable. Their sponsors felt they were significantly ($p < .05$) less reserved and less sensitive. Compared to the control group, the girls who had gone through the Outward Bound program had become relatively more stable, more dependable, more critical, livelier, more independent, less sensitive, less conventional, and more liberal. An assessment done nineteen months later showed that the standards and attitudes the girls learned did transfer into their normal lives when they returned to their normal routine of home and work.

In a personal report on Outward Bound, Maynard (1969) characterized the program by first referring to nature as teacher, insisting that a youth who encounters a stretch of wilderness for the first time, and must learn to cope to survive, will also learn a great deal about himself. Maynard saw introspection and contemplation as integrally significant to the program. He felt that the confrontation with self is one of the most important aspects of the program and that participants matured as a result of the experience. Maynard observed that this confrontation left participants stronger emotionally and physically, more willing to lead an active life, and more positive.

Other Risk-related Areas

In addition to studies of Outward Bound Programs, evaluations of other risk-related programs have been conducted. Tapply (1977) has surveyed the high risk recreation and learning centers in the

United States. His findings indicated that self-development, self-discovery, and self-enhancement are the basic goals of many high adventure wilderness programs. Besides Outward Bound and Project Adventure, four separate schools have been developed; the National Outdoor Leadership School in Lander, Wyoming, Project Live, Athenian Wilderness Experience, and the wilderness program at the University of Montana. All of these programs have similar basic formats and goals in mind which are very much like those formulated by Outward Bound and Project Adventure. The first few days are spent in base camp beginning to know one another and learning about risk recreation through a ropes course and basic initiative test. These early activities are designed to increase self-confidence and mutual support within a group, to develop an increased level of agility and physical condition, to promote joy in the physical self and in being with others, and to develop an increased familiarity and identification with the natural world. The stated goals are to bring the youth (and others) back from a world that shuns physical activity, discipline, pain and compassion.

Critiques of Literature Reviews of Risk-related Programs.

Two reviews of literature have examined many of the studies done in the area of wilderness and survival training. Iida (1976), in a review, faulted many programs for being developed within a self-theory framework. This theory states that peoples' behavior is commensurate with their view of themselves. Iida believed that researchers on adventure-oriented programs see the formation of

a self concept as dependent on experiencing stress. Iida pointed out that while repeated success in solving life problems may lead to a higher self concept, failures may lead to low self-esteem. In the review, Iida tried to find the outcomes of adventure-oriented programs upon the participants and to probe further research in the area. The study has included approximately 60 articles. The variables used for self concept include: self-esteem, self-awareness, self-assertion, self-confidence, self-actualization, and sense of competence. The tests used most commonly are the self concept scale, the self-esteem scale, the personality inventory tests, the real-ideal scale, and the semantic differential test. Iida found that the Tennessee Self Concept Scale has been used most often. Research has shown consistent change in the self concept in a positive direction.

Another review of literature has been done by Barcus and Bergeson (1972). Their evaluation measured the contribution of outdoor survival training to mental health. In those studies which have been conducted, two instruments have been used (the Tennessee Self Concept Scale and the Cattell 16 Personality Factor Test). Barcus and Bergeson have noted that a control group could make the results of a study more valid, and also suggested studies which examine the composition of the group or the difference in results between solo survival and group survival.

Research Involving Risk-related Programs. Two statistical studies of wilderness programs were done by Thorstenson and Heaps (1973, 1974). They maintained that outdoor survival experiences have been found to be rehabilitative for those who experience problems with drugs, academics, or juvenile delinquency. A study was done (1973) with 82 students at Brigham Young University, which included a shakedown hike, a group project, rappelling, a survival week living off the land, student-led expeditions, and a solo experience of three to five days. The Tennessee Self Concept Scale was administered before and after treatment, and showed a significant increase ($p < .05$) in the level of self-esteem. Specifically, students were happier with their physical and personal selves and felt better about their moral, ethical and social selves. There were statistically significant changes ($p < .05$) on all ten of the subscales used. According to Thorstenson and Heaps, the personal growth and lessening of fears that came as a result of this experience was very therapeutic.

Heaps and Thorstenson (1974) also studied 21 students before and after a survival experience, and then retested them again after one year to see if changes that were noted immediately after the program were there one year later. The immediate effect was that students' perceptions of their identity, self-satisfaction, behavior, physical self, moral-ethical self, personal self, and value as a family member became more positive from the beginning to the end of the

survival expedition. All of these changes were significant ($p < .05$) and changes in Total Positivity, Identity, and Personal Self were the most significant ($p < .01$). Positive changes in self and behavioral evaluations were maintained one year following participation in survival training on all of the above subscales except for the Family Self.

Another avenue of rehabilitation using adventure experiences was followed by Jerstad and Stelzer (1973). After five years of work with a wide range of individuals, they developed an adventure model including rock climbing, white-water boating, and survival/ecology hiking. The unique aspect of the program is that it is offered to mental patients from the Oregon State Mental Hospital, including young and old, severely and mildly handicapped. Each patient has a guide who serves as a friend rather than a supervisor, providing important emotional support. The experiences provided opportunities for trusting and caring to occur. One year later, 31 of the 51 who participated in the project are out of the hospital, including one patient who had been hospitalized for 24 years.

Another study under consideration was done by Lambert, Segger, Staley, Spencer, and Nelson (1978). Their study compared groups of students in the area of self concept. There were 37 participants in a group which took survival training, 28 students in a group which engaged in human relation exercises, some of which were done in a wilderness setting, 18 students in the group which was called the "pseudo-treatment control," discussing personal

adjustment in an academic setting, and 21 in the no-treatment control group. There were significant changes ($p < .05$) in the survival and human relations groups on the Total Positivity subscale and the self-satisfaction sub-scale. Also, the survival group demonstrated significant positive changes in the areas of self-criticism, identity, physical self, and moral-ethical self ($p < .01$). Shostrom's Personal Orientation Inventory did not show any significant differences ($p > .01$). Some preliminary data suggested that females improved more on their self concept than males.

In conclusion, most other risk-related programs have developed from the Outward Bound School and include the National Outdoor Leadership School, Project Adventure, Project Live, Athenian Wilderness Experience and the wilderness program at the University of Montana. They share the same objectives of promoting self-confidence, cooperation, trust, and a oneness with nature. People engage in these activities for different reasons, but all seem to benefit, from mentally and physically handicapped to inmates. A definite need for risk recreation has been established, according to current literature.

Summary

Background readings for this study have included studies of Project Adventure, Outward Bound, and other risk-related areas. A review of literature has indicated that there have been many self concept tests given, and that most researchers used the

Tennessee Self Concept Scale. Other tests of a similar nature have been conducted by Project Adventure itself and the results indicate a positive change in self concept. The studies of Outward Bound programs have been the most numerous, and they have consistently shown positive changes in the self concept of participants. Studies of Project Adventure programs have all revealed very positive results with regard to improvement of the self concept.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this study was to describe the effect of participation in a Project Adventure Class on the self concept of high school students. The students' self concepts before the Project Adventure classes were compared with their self concepts after completing the classes. This chapter describes the research design, the subjects, the testing procedures, the training program, and the method of statistical analysis.

Research Design

The study was conducted at a high school during the Spring of 1980. Ninety-nine ninth and tenth grade students (36 female, 63 male) were involved in the study. The students, who had taken a beginning course in Project Adventure, were divided into five classes. The day before each of the classes began the Project Adventure course, May 1, one hour was taken to introduce the study and to administer the Tennessee Self Concept Scale. A discussion of the nature and purpose of the Tennessee Self Concept Scale, its development and its administration are found in Appendices A, B, and C. The researcher held conferences with the instructor preceding, during, and after the course. In addition, the researcher gathered data for this project by visiting each class and photographing the students. After the Project was completed, the Tennessee Self

Concept Scale was again administered on May 20. The Tennessee Self Concept Scale answer sheets were forwarded to Nashville, Tennessee, for computerized scoring. Appendix D contains a discussion of the reliability and validity of the Tennessee Self Concept Scale. The results of this scoring were subsequently analyzed at the Augustana Research Institute. A follow-up letter and a questionnaire were sent to the parents to further evaluate the impact of Project Adventure. The questionnaire and data gathered are reported in Appendices E, F and G, respectively.

Subjects

The subjects (N = 99) who participated in this study were 36 females and 63 males from five physical education Project Adventure classes at a selected high school. The five Project Adventure classes met approximately 45 minutes each class period for 12 class days. One-hundred twenty-three students were contacted, but due to absences for either the pre-test or post-test, only 99 pre-tests and post-tests were completed.

Testing Procedures

The Tennessee Self Concept Scale was administered in a classroom setting immediately before and after the 12 day course. The dates of testing were May 1 and May 20. The tests were distributed and the students were instructed to answer the questions

as candidly as possible. The average time taken to complete the test was approximately 12 minutes. The researcher and course instructor administered and collected the tests. The students were informed that the results of the tests would be kept confidential.

Training Program

The training program consisted of a 12 day course in Project Adventure at a selected high school. The ideological basis and objectives for the selected high school course have been proposed by the instructor:

1. All people need adventure and risk in their lives to develop self confidence and independence.
2. Problems and situations are designed to engage individuals or small groups of students in solving real problems which have social, intellectual and physical dimensions.
3. The main objective of the program is to help every student develop a good self image, which is accomplished through participating in a successful experience.
4. The situations and problems are designed to give every student a challenge and an opportunity to succeed at some level.
5. All students can find success within the support of the group and these successes enable a student to take higher risks to gain further success.
6. Students are not pressured to succeed; they are asked

only to try, and are requested to attempt only when they are ready.

Four basic areas are included in the Project Adventure Program of which each of these comprises a part of each class.

1. Warm-ups and Group games. The purpose of these activities is to help the students physically get ready for the day's activities by stretching and warming up their muscles. A further purpose was to help the students to know each other, to feel comfortable with touching each other, and to become accustomed to trying something new. Several warm-up games and group activities were used:

a. Side Straddle Hops. Legs are moved from side to side and alternate front to back in a scissors movement.

b. Click the Heels. Hop from side to side and tap the heels together on each hop.

c. Blindfold Soccer. Each person finds a partner and is assigned a team. The person wearing the blindfold has to kick the ball, assisted by his sighted partner who is giving directions.

d. Ice Breaker. The whole group is tied together in a tight circle with a rope and sent on a course. They are instructed to find out two things they didn't know about one other person in the group.

e. Chicken Fight. Partners are chosen, and one of partners rides on the other's back and seeks to unseat other riders.

f. Three-legged Soccer. Two people tie their adjoining legs together and compete in a game of soccer.

g. Frisalevio. A small area is delineated which is

the prison. Prisoners are released when one person runs through the guards without being hit by a frisbee. Once into the prison area he must shout "frisalevio." People are put into prison by being hit by a tossed frisbee.

2. Skills and Safety. The purpose of these activities is to insure the safety of the participants and to teach the skills needed to participate fully in the course. There are several areas covered:

a. Falls. Participants are encouraged to participate in falls from their feet and from low obstacles so they will not feel inhibited about how they look, and so they will be prepared to land safely in the event of a fall. They are also taught how to safely catch each other in the event of a fall.

b. Spotting. Individuals are taught how to catch a participant in the event of a fall by keeping their eyes on the participant and anticipating the movements. The upper end of the body is supported, specifically the head.

c. Trust Falls. The group stands in a circle, and the person in the middle closes his eyes and lets himself fall. The group catches him and pushes him to another side. As it implies, this builds trust and an ability to handle people in a falling situation.

d. Ropes and Knots. The basic skills of tying certain knots, and of working with ropes are taught (Figure I).

FIGURE I

BASIC KNOT-TYING SKILLS



e. Carabiners and Equipment. The necessary equipment used in Project Adventure, such as carabiners, clips, U-bolts, and goldlines are explained and the students are taught how to properly use these items (Figure II).

f. Belaying and Commands. Belaying is a protective arrangement whereby a student is anchored to a rope above him or clipped to a rope held by another person on the ground (Figure III). This is a protective device used when a student is working on medium or high obstacles.

g. Rappelling. Rappelling is a method of descent from a height. A student is secured in a saddle of ropes around the waist and thighs and lets himself down hand over hand backwards with a rope.

3. Initiative Problems. The activities in this section are designed to increase a student's ability to be an effective member of a group which has a problem to solve:

a. All Aboard. The aim for this exercise is to attempt to get as many people as possible on a two-foot by two-foot platform built 18 inches off the ground.

b. The Beam. The objective for this exercise is to move the entire group over the beam as quickly and efficiently as possible. The beam is seven feet above the ground.

c. The Electric Fence. A five-foot high rope is strung around an enclosure. The group is told that the rope and everything beneath it carry a lethal electrical charge. They must then try to get everyone in the group out of the enclosure

FIGURE II

CARABINERS, CLIPS AND KNOTS



FIGURE III

BELAYING



without touching the rope or anything beneath it.

d. The 14 Foot Wall. A wood wall 14 feet high must be scaled by everyone in the group within five minutes. No belts or ropes or other aids may be used.

e. Nitro Crossing. The object is to transport the group and a container of water (three-fourths full) across an open area using a swing rope.

f. Tyrolean Traverse. The object is to attempt to move a group of seven students across a 30-foot area, using only four points of contact with the ground.

4. Ropes Course. This part of the class takes up more and more of the time as the class becomes more skilled. It involves low, medium and high skills:

a. Low Course. There are many obstacles at a height of about four or five feet from the ground which may be completed, including the track walk, the tension traverse, the kitten crawl, the wild woosey, and the swinging log.

b. Medium Course. Heights of four feet to 15 feet are conquered in this part of the program. Activities include trying to crawl up a fidget ladder, working one's way up an inclined log, and completing the commando crawl, the hickory jump, and the low belay.

c. High Course. Students work on heights up to 60 feet. Students walk the two-line bridge thirty feet up (Figure IV), leap from a post fifty feet in the air to a swinging trapeze six feet away, climb up logs six feet apart

FIGURE IV

THE TWO-LINE BRIDGE



to a height of 50 feet (Figure V), rappel backwards down a 60-foot height (Figure VI), climb the 60-foot platform using small blocks of wood to grip and step on (Figures VII - XI), and ride the zip wire (Figures XII - XVI).

A more detailed account of each day's activities is presented in Appendix H.

Statistical Procedures

The computer center at Nashville, Tennessee, scored the tests and derived means and standard deviations for males and females on pre-tests and post-tests. Subsequent analyses were conducted at the Augustana Research Institute in Sioux Falls, South Dakota. A series of one-tailed paired t-tests were conducted ($p < .05$) to test the significance of the mean difference between the pre-test and post-test for males, for females and for the collective group.

FIGURE V

THE LOG LADDER

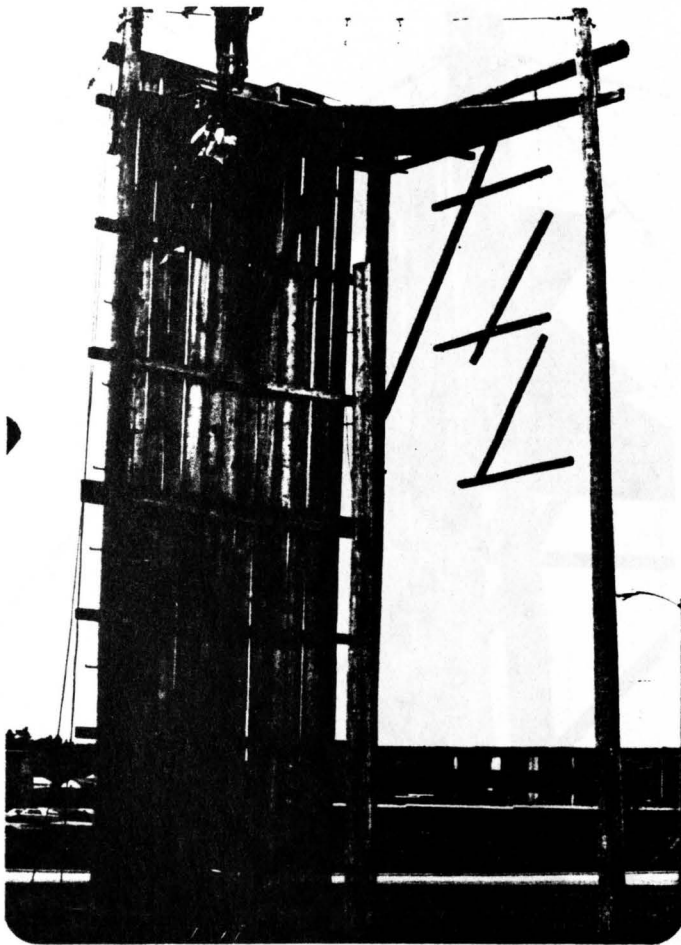


FIGURE VI

RAPPELLING



FIGURE VII

CLIMBING THE 60-FOOT PLATFORM, PART I



FIGURE VIII

CLIMBING THE 60-FOOT PLATFORM, PART II



FIGURE IX

CLIMBING THE 60-FOOT PLATFORM, PART III



FIGURE X

CLIMBING THE 60-FOOT PLATFORM, PART IV



FIGURE XI

CLIMBING THE 60-FOOT PLATFORM, PART V

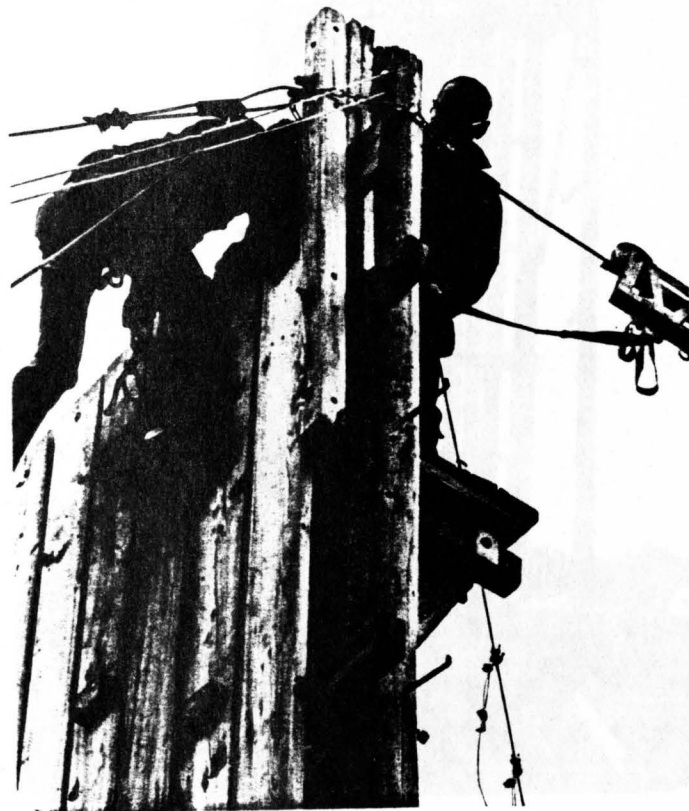


FIGURE XII

RIDING THE ZIP WIRE, PART I

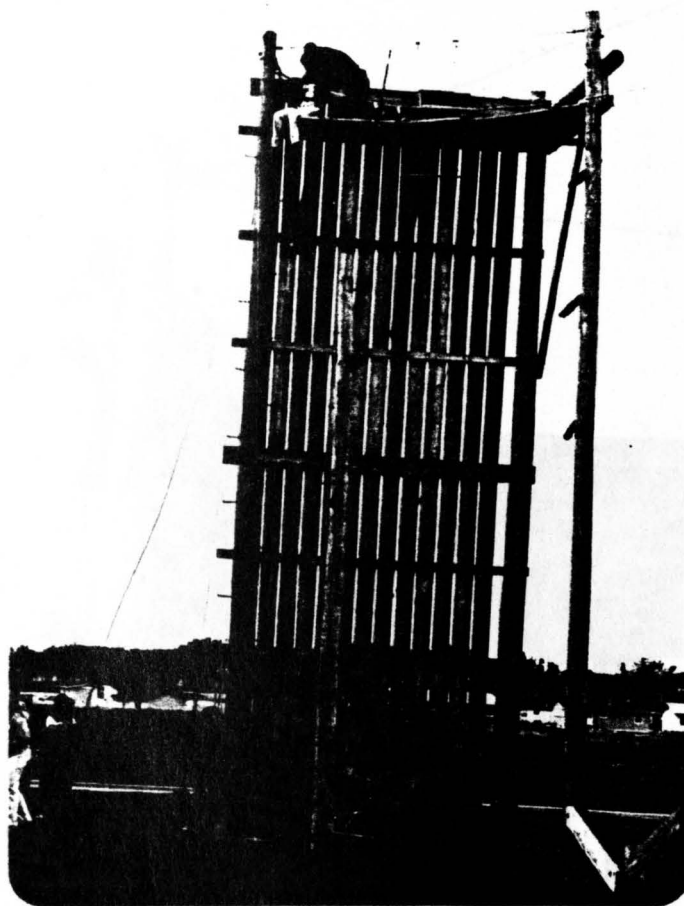


FIGURE XIII

RIDING THE ZIP WIRE, PART II

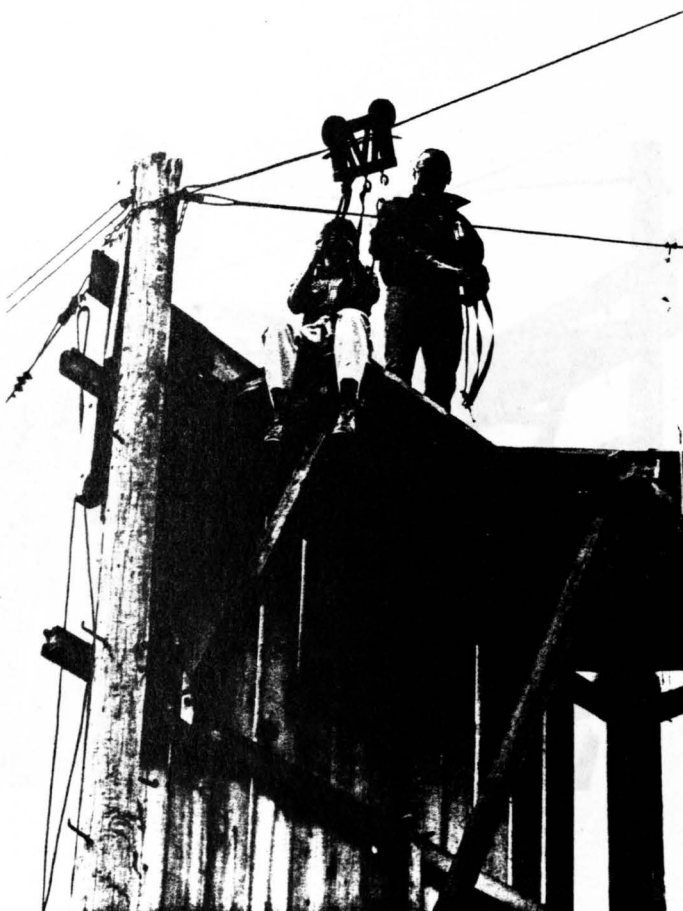


FIGURE XIV

RIDING THE ZIP WIRE, PART III



FIGURE XV

RIDING THE ZIP WIRE, PART IV

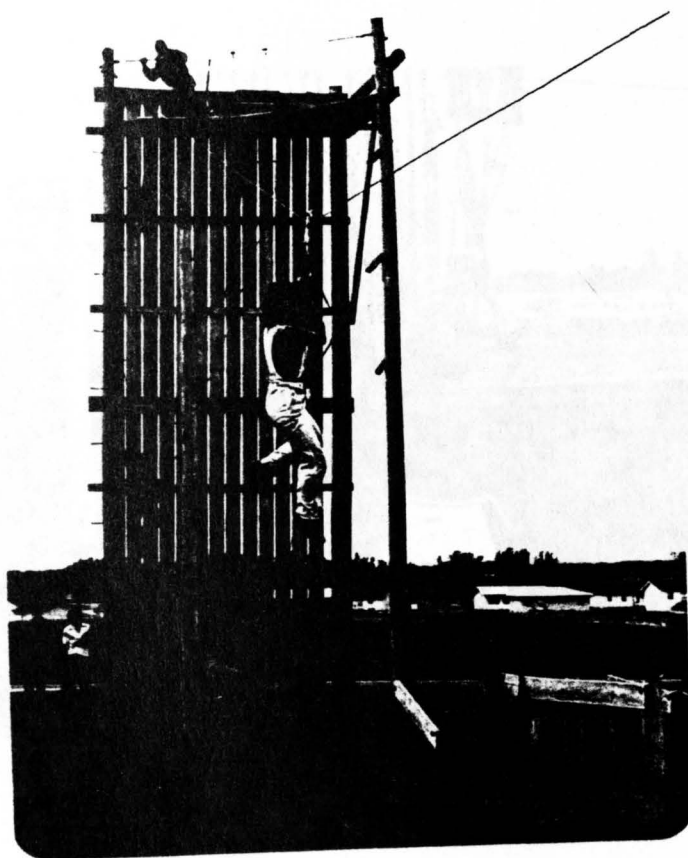
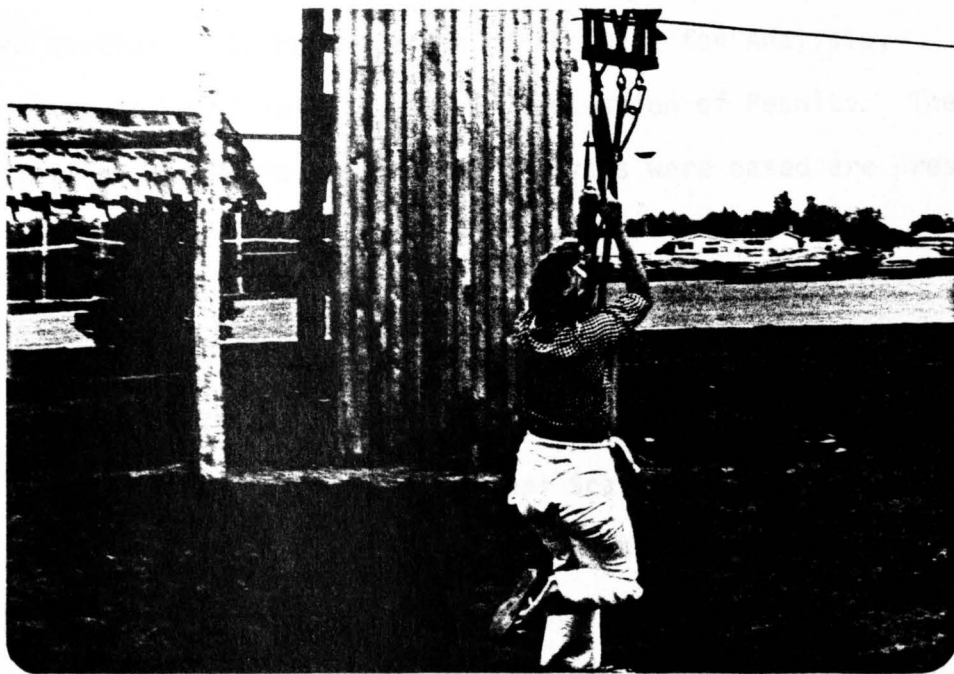


FIGURE XVI

RIDING THE ZIP WIRE, PART V



CHAPTER IV

ANALYSIS AND DISCUSSION OF RESULTS

The purpose of this study was to describe the effect of participation in an advanced Project Adventure Class on the self concept of high school students.

The data analyzed have been divided into the following three sections: 1) Organization of the Data for Analysis, 2) Presentation of Results, and 3) Discussion of Results. The raw data on which the statistical analyses were based are presented in Appendix I.

Organization of the Data for Analysis

Initially, 123 selected high school students were administered the Tennessee Self Concept Scale in the Spring of 1980. These scores were utilized as the pre-test measures for later analyses. Subsequently, these students participated in a 12-day Project Adventure Program of approximately 45 minutes per day. At the conclusion of the Project Adventure class, the same students were again administered the Tennessee Self Concept Scale. This second test administration served as a post-test for subsequent statistical analyses of the 123 students who initially took the Tennessee Self Concept Scale; 99 successfully completed all sessions of the Project Adventure Course and were present for the post-test. The pre-test and post-test scores of these 99 students were used

for further statistical analyses.

The tests were scored at the computer center at Nashville, Tennessee, where means and standard deviations for males and females on pre-tests and post-tests were derived. Further statistical analyses were conducted at the Augustana Research Institute in Sioux Falls, South Dakota. A one-tailed correlated t-ratio using the standard SPSS was employed to evaluate the hypothesis that there would be a significant change in self concept of males, females and the total group before and after Project Adventure. Since statistically it is presumed that each individual would remain relatively consistent with himself (Runyan and Haber, 1979), a strong correlation between the pre-test and post-test is expected. A significant difference between the samples is assessed by dividing the mean difference between the two samples by the standard error of the difference between means. This is the direct-difference method and consists of finding the differences between the criterion scores obtained by each pair of matched subjects, and treating these differences as if they were raw scores. The computer was used to calculate these scores. In addition, a t-ratio was employed by the researcher to establish differences between the pre-test of the entire group and the norms of the test group (N = 626).

Presentation of Results

The data analyzed are presented in 12 sections. Each section is specifically directed to one of the 12 self concept variables

measured. Tables I through III depict the pre-test scores for males, females and the total group. Tables IV through VI depict the post-test scores for males, females, and the total group. The seventh table shows the mean differences between the self concept of the Brookings students and the self concept of the Norm Group. The mean difference, standard error of the mean difference and t-ratio are indicated in Tables VIII through X, showing which scores are significantly different. Table XI depicts the direction of self concept change between the top ten subject scores and the bottom ten scores on the total positivity scale by analyzing the mean differences.

There are 29 separate items which are scored on the Tennessee Self Concept Scale. Those twelve which pertain to the study of Project Adventure are included. A detailed summary of the nature and meaning of the scores of the Tennessee Self Concept Scale is found in Appendix J. The results of each item will be discussed, noting any changes in self concept in males, females, and the total group, between the pre-test and post-test. Norms published by Fitts (1965) for the test are found in Appendix K.

The Self Criticism Scale. The Self Criticism Scale is composed of ten slightly derogatory statements that most people admit as being true for them. Extremes depict people lacking healthy defenses or individuals who are highly, abnormally defensive. Generally high scores indicate a normal, healthy openness and capacity for self-criticism. The males increased nonsignificantly

TABLE I
 PRE-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR MALES
 (N = 63)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	36.00	5.27	.66	29 - 50
Net Conflict	12.73	24.49	3.09	-32 - 50
Total Conflict	35.18	14.61	1.84	13 - 94
Total Positivity	306.73	35.68	4.50	266 - 388
Positive Identity	109.86	17.25	2.18	85 - 141
Self-Satisfaction	98.70	13.13	1.66	74 - 135
Behavior	98.18	11.66	1.47	71 - 124
Physical Self	64.10	9.47	1.19	47 - 85
Moral-Ethical Self	60.49	8.61	1.09	36 - 84
Personal Self	61.48	8.22	1.04	42 - 86
Family Self	61.73	9.05	1.14	43 - 83
Social Self	58.94	7.29	.92	41 - 79

TABLE II

PRE-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR FEMALES
(N = 36)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	37.47	5.93	.99	6 - 43
Net Conflict	-2.78	9.74	1.62	-27 - 21
Total Conflict	30.00	5.52	.92	11 - 44
Total Positivity	322.33	37.41	6.24	237 - 395
Positive Identity	120.39	13.03	2.17	89 - 140
Self-Satisfaction	98.47	16.37	2.73	71 - 132
Behavior	103.47	11.71	1.95	93 - 132
Physical Self	65.22	8.91	1.49	51 - 81
Moral-Ethical Self	63.86	8.77	1.46	48 - 83
Personal Self	63.06	9.15	1.53	42 - 84
Family Self	65.33	9.10	1.52	43 - 86
Social Self	64.86	8.07	1.35	49 - 78

TABLE III

PRE-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR ALL STUDENTS
(N = 99)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	36.54	5.53	.56	6 - 50
Net Conflict	7.09	21.67	2.18	-32 - 50
Total Conflict	33.29	12.34	1.24	11 - 94
Total Positivity	312.40	36.90	3.71	237 - 395
Positive Identity	113.69	16.58	1.67	85 - 141
Self-Satisfaction	98.62	14.31	1.44	71 - 135
Behavior	100.10	11.90	1.20	74 - 132
Physical Self	64.51	9.24	.93	47 - 85
Moral-Ethical Self	61.72	8.77	.88	36 - 84
Personal Self	62.05	8.56	.86	42 - 86
Family Self	63.04	9.51	.96	43 - 86
Social Self	61.09	8.07	.81	41 - 79

TABLE IV

POST-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR MALES
(N = 63)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	37.22	4.23	.53	28 - 47
Net Conflict	7.24	20.74	2.62	-21 - 80
Total Conflict	35.94	13.83	1.74	8 - 84
Total Positivity	319.27	34.31	4.33	253 - 402
Positive Identity	116.62	14.11	1.78	82 - 140
Self-Satisfaction	100.79	14.79	1.87	63 - 135
Behavior	101.86	12.36	1.56	73 - 126
Physical Self	67.05	8.09	1.02	50 - 88
Moral-Ethical Self	62.16	8.75	1.10	45 - 79
Personal Self	63.75	8.88	1.12	44 - 85
Family Self	64.48	9.29	1.17	39 - 82
Social Self	61.84	7.49	.94	42 - 78

TABLE V

POST-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR FEMALES
(N = 36)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	36.97	5.28	.88	15 - 50
Net Conflict	0.22	14.08	2.35	-25 - 21
Total Conflict	27.94	8.60	1.43	17 - 45
Total Positivity	317.22	39.45	6.58	253 - 383
Positive Identity	116.94	15.56	2.59	93 - 141
Self-Satisfaction	96.94	16.72	2.79	68 - 129
Behavior	103.33	11.08	1.85	91 - 120
Physical Self	65.50	8.94	1.49	48 - 83
Moral-Ethical Self	62.03	9.25	1.54	48 - 81
Personal Self	63.36	9.18	1.53	47 - 81
Family Self	62.83	9.08	1.51	49 - 82
Social Self	63.50	8.66	1.44	50 - 78

TABLE VI

POST-TEST REPRESENTATIVE VALUES FOR SELF CONCEPT SCORES FOR ALL STUDENTS
(N = 99)

Scale	\bar{X}	S	$\frac{S}{\bar{X}}$	Range
Self Criticism	37.13	4.62	.46	15 - 50
Net Conflict	4.69	18.83	1.89	-21 - 80
Total Conflict	33.03	12.74	1.28	8 - 84
Total Positivity	318.53	36.08	3.63	253 - 402
Positive Identity	116.74	14.58	1.47	82 - 141
Self-Satisfaction	99.39	15.54	1.56	63 - 135
Behavior	102.39	11.87	1.19	73 - 126
Physical Self	66.48	8.39	.84	48 - 88
Moral-Ethical Self	62.11	8.89	.89	45 - 81
Personal Self	63.61	8.94	.90	44 - 85
Family Self	63.88	9.20	.92	39 - 82
Social Self	62.44	7.93	.80	42 - 78

TABLE VII

COMPARISON OF SAMPLED MEAN VALUES FOR ALL STUDENTS (N = 99) WITH
THE TENNESSEE SELF CONCEPT SCALE NORMAL VALUES (N = 626)

Scale	Pretest		Norm		$\bar{X}\Delta$	S $\bar{X}\Delta$	t
	\bar{X}	S	μ	σ			
Self Criticism	36.54	5.53	35.54	6.70	1.0	.56	1.79
Net Conflict	7.09	21.67	-4.91	13.01	12.0	.71	16.90**
Total Conflict	33.29	12.34	30.10	8.21	3.19	1.24	2.57*
Total Positivity	312.40	36.90	345.57	30.70	-33.17	3.71	-8.94**
Positive Identity	113.69	16.58	127.10	9.96	-13.41	1.67	-8.03**
Self-Satisfaction	98.62	14.31	103.67	13.79	-5.05	1.44	-3.51**
Behavior	100.10	11.90	115.01	11.22	-14.91	1.20	-12.42**
Physical Self	64.51	9.24	71.78	7.67	-7.27	.93	-7.82**
Moral-Ethical Self	61.72	8.77	70.33	8.70	-8.61	.88	-9.78**
Personal Self	62.05	8.56	64.55	7.41	-2.50	.87	-2.91**
Family Self	63.04	9.51	70.83	8.43	-7.79	.96	-8.11**
Social Self	61.09	8.07	68.14	7.86	-7.05	.81	-8.70**

*p < .05, two-tailed test

**p < .01, two-tailed test

TABLE VIII

MEAN DIFFERENCES IN SELF CONCEPT SCORES FOR MALES (N = 63)
DURING 12 DAYS OF A PROJECT ADVENTURE PROGRAM

Scale	Pre-test		Post-test		$\bar{X}\Delta$	SE _{$\bar{X}\Delta$}	t
	\bar{X}	S	\bar{X}	S			
Self Criticism	36.00	5.27	37.22	4.23	-1.22	0.63	-1.95*
Net Conflict	12.73	24.49	7.24	20.74	5.49	3.07	1.79*
Total Conflict	35.18	14.61	35.94	13.83	-0.76	1.98	-0.39
Total Positivity	306.73	35.68	319.27	34.31	-12.54	2.93	-4.29**
Positive Identity	109.86	17.25	116.62	14.11	-6.76	1.72	-3.93**
Self-Satisfaction	98.70	13.13	100.79	14.79	-2.10	1.31	-1.60
Behavior	98.18	11.66	101.86	12.36	-3.68	1.38	-2.66**
Physical Self	64.10	9.47	67.05	8.09	-2.95	0.88	-3.35**
Moral-Ethical Self	60.49	8.61	62.16	8.75	-1.67	0.89	-1.88*
Personal Self	61.48	8.22	63.75	8.88	-2.27	0.92	-2.47**
Family Self	61.73	9.05	64.48	9.29	-2.75	0.99	-2.78**
Social Self	58.94	7.29	61.84	7.49	-2.90	0.77	-3.80**

*p<.05, one-tailed test

**p<.01, one-tailed test

TABLE IX

MEAN DIFFERENCES IN SELF CONCEPT SCORES FOR FEMALES (N = 36)
DURING 12 DAYS OF A PROJECT ADVENTURE PROGRAM

Scale	Pre-test		Post-test		$\bar{X} \Delta$	SE _{$\bar{X} \Delta$}	t
	\bar{X}	S	\bar{X}	S			
Self Criticism	37.47	5.93	36.97	5.28	0.50	0.81	0.62
Net Conflict	-2.78	9.74	0.22	14.08	-3.00	0.81	-1.33
Total Conflict	30.00	5.52	27.94	8.60	2.06	1.42	1.45
Total Positivity	322.33	37.41	317.22	39.45	5.11	4.08	1.25
Positive Identity	120.39	13.03	116.94	15.56	3.44	1.87	1.85*
Self-Satisfaction	98.47	16.37	96.94	16.72	1.53	1.86	0.82
Behavior	103.47	11.71	103.33	11.08	0.14	1.29	0.11
Physical Self	65.22	8.91	65.50	8.94	-0.28	0.83	-0.34
Moral-Ethical Self	63.86	8.77	62.03	9.25	1.83	1.05	1.74*
Personal Self	63.06	9.15	63.36	9.18	-0.31	0.95	-0.32
Family Self	65.33	9.10	62.83	9.08	2.50	1.17	2.14*
Social Self	64.86	8.07	63.50	8.66	1.36	1.08	1.26

*p < .05, one-tailed test

**p < .01, one-tailed test

TABLE X

MEAN DIFFERENCES IN SELF CONCEPT SCORES FOR ALL STUDENTS (N = 99)
DURING 12 DAYS OF A PROJECT ADVENTURE PROGRAM

Scale	Pre-test		Post-test		$\bar{X} \Delta$	SE _{$\bar{X} \Delta$}	t
	\bar{X}	S	\bar{X}	S			
Self Criticism	36.54	5.53	37.13	4.62	-0.60	0.50	-1.19
Net Conflict	7.09	21.67	4.69	18.83	2.40	2.15	1.12
Total Conflict	33.29	12.34	33.03	12.74	0.26	1.36	0.19
Total Positivity	312.40	36.90	318.53	36.08	-6.12	2.52	-2.43**
Positive Identity	113.69	16.58	116.74	14.58	-3.05	1.38	-2.22*
Self-Satisfaction	98.62	14.31	99.39	15.54	-0.78	1.08	-0.72
Behavior	100.10	11.90	102.39	11.87	-2.29	1.01	-2.27*
Physical Self	64.51	9.24	66.48	8.39	-1.98	0.65	-3.06**
Moral-Ethical Self	61.72	8.77	62.11	8.89	-0.39	0.70	-0.56
Personal Self	62.05	8.56	63.61	8.94	-1.56	0.68	-2.28*
Family Self	63.04	9.51	63.88	9.20	-0.84	0.80	-1.05
Social Self	61.09	8.07	62.44	7.93	-1.35	0.66	-2.07*

*p < .05, one-tailed test

**p < .01, one-tailed test

TABLE XI

COMPARISON OF TENNESSEE SELF CONCEPT SCALE OF TOTAL POSITIVITY
MEAN VALUES IN THE HIGH (N = 10) AND LOW (N = 10) GROUPS

Group	Pre-test \bar{X}	Post-test \bar{X}	$\bar{X} \Delta$
High	381.60	346.40	-35.2
Low	255.60	293.70	38.1

posting a mean of 36.0 on the pre-test, and a mean of 37.22 on the post-test (Table VIII). The females scored 37.47 on their pre-test, declining nonsignificantly to a score of 36.97 on the post-test (Table IX). Overall, the students increased nonsignificantly from a mean of 36.54 to a mean of 37.13 (Table X). The norm for Self Criticism is 35.54 (Table VII).

The Net Conflict Scores. The Net Conflict Scores are a reflection of the way in which the individual's responses to positive items differ from, or conflict with his responses to negative items of the same kind. The males had significantly changed positive scores ($p < .05$) (mean = 12.73 pre-test and 7.23 post-test) (Table VIII) meaning that they tended to overaffirm their positive attributes. A nonsignificantly declining score such as the females demonstrated means that the subjects concentrated on eliminating the negative (mean = -2.78 pre-test, and 0.22 post-test) (Table IX). Overall the subjects improved nonsignificantly to 4.69 (Table X) compared to the norm of -4.9 (Table VII).

Total Conflict. The Total Conflict scores reflect conflicting responses to positive and negative items within the same area of self perception. A high score indicates confusion, contradiction, and general conflict in self perception. A low score has the opposite meaning. The males scored higher (mean = 35.18 pre-test and 35.94 post-test) (Table VIII) than the females (mean = 30.0 pre-test and 27.94 post-test) (Table IX). As a group,

the change was also nonsignificant, from 33.29 to 33.03 (Table X), while the norm registered 30.10 (Table VII).

Total Positivity. Total Positivity is the single most important score on the form, reflecting the overall level of self esteem. Persons with high scores feel good about themselves and have self-confidence. Persons with low scores are doubtful about their own worth, have little self-confidence and are often depressed and anxious. The males (mean = 306.73 pre-test and 319.27 post-test) (Table VIII) did not score nearly as high as the females (mean = 322.33 pre-test and 319.27 post-test) (Table IX), but the males improved significantly ($p < .01$) in their scores while the females declined nonsignificantly. As a group, there was an increase from 312.40 to 318.53 post-test, a significant change ($p < .01$) (Table X). Both scores were lower than the norm of 345.57 (Table VII). When the mean values of the ten highest scores and the ten lowest scores were compared on this scale, it was found that the high group declined from a pre-test score of 381.60 to a post-test score of 346.40, while the low group improved from a pre-test score of 255.60 to 293.70 (Table XI).

The Identity Scale. The Identity Scale depicts how an individual describes himself, what he is as he sees himself. The males scored a mean of 109.86 on the pre-test and a mean of 116.62 on the post-test, a significant increase ($p < .01$) (Table VIII). The females again scored higher on the pre-test than the post-test, declining significantly (mean = 102.39 pre-test to mean = 116.94 post-test) (Table IX). The total group tested first at 113.69 and secondly at

116.74 (Table X), a significant increase ($p < .01$).

Self Satisfaction. The Self Satisfaction score shows the level of self-acceptance. Often a person's expectations of himself are reflected here, and his acceptance might be low, even though his self-identity scores were high. In this particular case, the males started with a mean of 98.70 and increased nonsignificantly to 100.79 (Table VIII). The females again declined from a score of mean = 98.47 to 99.39, a nonsignificant decline (Table X), compared to the norm group who had a mean of 103.67 (Table VII).

Behavior. Behavior reflects a person's perceptions of his own behavior, what he does and how he acts. The males increased significantly from a mean of 98.18 pre-test to a mean of 101.86 post-test (Table VIII) while the females stayed about the same (mean = 103.47 pre-test to 103.33 post-test) (Table IX). Together the group increased significantly ($p < .05$) from a mean of 100.10 to 102.39 (Table X), lower than the norm group at 115.01 (Table VII).

Physical Self. The Physical Self is one's reflections on one's body and bodily powers. The males showed a significant increase ($p < .01$) from 64.10 to 67.05 (Table VIII). The females increased nonsignificantly from 65.22 to 65.50 (Table IX), while the total group showed a significant increase ($p < .01$) from 64.51 to 66.48 (Table X). The norm group showed a score of 71.78 (Table VII).

Moral-Ethical Self. One's moral or ethical self is the way he sees himself in relation to his religion or morals, whether he is a good or bad person. Again, the males improved significantly

(mean = 60.49 pre-test to mean = 62.16 post-test) (Table VIII) while the females declined significantly ($p > .05$) (mean = 63.68 pre-test to mean = 62.03 post-test) (Table IX). Together the group improved from 61.72 to 62.11, a nonsignificant increase (Table X), lower than the norm of 70.33 (Table VII).

Personal Self. The Personal Self is a person's view of his own personality. The males improved significantly ($p < .01$) (mean = 61.48 pre-test and mean = 63.75 post-test) (Table VIII) and the females stayed approximately the same (mean = 63.06 pre-test and 63.36 post-test) (Table IX). The total group pre-test mean of 62.05 and post-test mean of 63.61 showed a significant increase (Table X) but was still somewhat lower than the norm group at 64.55 (Table VII).

Family Self. The females declined as much as the males gained on the Family Self Subscale. This score deals with an individual's perception of worth and value as part of a family. The males started with a mean of 61.73 and climbed to a mean of 64.47, a significant change ($p < .01$) (Table VIII) while the women had a mean of 65.33 before and a mean of 62.83 afterward, a significant decline (Table IX). Together there was a nonsignificant increase beginning at 63.04 and ending at 63.88 (Table X), lower than the norm of 70.83 (Table VII).

The Social Self. Lastly, the Social Self is a picture of how an individual sees himself in relation to others, how worthwhile he feels and how adequately he sees himself in social interactions.

Scorewise, the same trend continued, although without as much variance. The men posted a pre-test mean of 58.94 and a post-test mean of 61.84, a significant increase ($p < .01$) (Table VIII). The women had a pre-test mean of 64.86 and a post-test mean 63.50, a nonsignificant change (Table IX). As a group the score increased significantly ($p < .05$) from 61.09 to 62.44 (Table X), still below the norm of 68.14 (Table VII). One interesting observation is that while the females generally declined and the men improved after Project Adventure, the females generally scored higher in each case than the men, especially on the pre-tests.

Discussion of the Results

Validity is an important factor in research, and in this study, the consistency of the scores with each other and with the norm group gave the study a certain measure of validity. The scores did not vary a great deal. Concerning the males, all the post-test results showed an increase except on subscale, the Net Conflict. Here the decline in conflict was a positive factor. Their gains were consistent. The difference between the males and the norm group remained consistent, with significant differences ($p < .05$) in all but one category.

The females were also consistent within their own group showing a decline in all but three subscales. Their declines were not significant except in three subscales. Their pre-test results

were consistently higher than those of the males, but also fell consistently short of the scores of the norm group. The total group also represented consistent scores, increasing significantly and at about the same rate on all but five subscales ($p < .05$).

As a group, the selected high school students improved their basic self concept after their experience with Project Adventure. The group which improved significantly in their self concept, however, was not females, as was hypothesized, but males. The following scores were significantly increased ($p < .05$) between pre- and post-tests on these scales: Self-criticism, Net Conflict, and the Moral-Ethical Self. There were many scores which changed significantly ($p < .01$): Total Positivity, Positive Identity, Behavior, Physical Self, Personal Self, Family Self, and Social Self. These scores all moved in a positive direction, while the females declined significantly ($p < .05$) in three areas: Positive Identity, Moral-Ethical Self, and Family Self. The group as a whole improved significantly ($p < .05$) in the following areas: Total Positivity, Positive Identity, Behavior, Physical Self, Personal Self, and Social Self.

It may be of interest to researchers in the field to note that while the males improved significantly in ten areas, the females declined in three areas, although they scored initially higher on nine areas. The scores for the females were closer to the norms than for the males, but all were below the norms. This is demonstrated in Table VII. All the selected students' scores were significantly ($p < .01$) lower than the Norm Group in the Pre-test

except for Self-Criticism and Net Conflict, which changed significantly ($p < .05$). Speculation about the lower scores as compared to the Norm Group might include the level of maturity of the selected students, the socio-economic background and the level of self-understanding demonstrated by this group. This would be information for another study.

Table XI compares the direction of movement on the Self Concept Scale between the top ten subject scores on the total Positivity Subscale (the most significant subscale) and the bottom ten subject scores on the Total Positivity Subscale, charting their means. The top ten mainly declined while the bottom ten mainly improved. One might infer that Project Adventure did more to help the student who had a lower self concept to begin with than the one who had a high or strong self concept. Another conjecture is the tendency of the extremes to move closer to the mean.

Only two other studies were found which pertained to Project Adventure programs and these were done by the Project itself at Hamilton, Massachusetts (Fersch and Smith, 1973). These studies, done in two years, were undertaken by two evaluators with help from several authorities in the field of psychology. Tenth grade students ($n = 224$) were evaluated with a battery of six tests: (a) The Tennessee Self Concept Scale, (b) The School Climate Survey, (c) The Independent School Association's Student Description Form, (d) A Questionnaire regarding students' leisure time activities, attitudes toward the Project, and future plans, (e) The American

Association of Health, Physical Education and Recreation Test, and (f) The Rotter Scale of Internal vs. External Control of Reinforcement.

Similarities to this study are several. First, both studies involved a relatively large number of subjects (99 selected subjects and 224 Hamilton subjects). The Tennessee Self Concept Scale was given to both groups before and after. Most important, both studies showed a significant positive change in self concept after an experience with the Project Adventure course, and both involved students of approximately the same age.

There are also many differences between the two studies. The Hamilton Project was much more extensive in length and breadth. It covered a two-year period, included more students and ran six tests instead of one. The Project Adventure classes were a year in length and included classes other than just physical education. More significant was the fact that the girls in the study evidenced more change than the boys, which was the opposite of the selected study. In the Hamilton study, the girls changed significantly for the better on Total Positivity, Positive Identity, Positive Behavior, Moral Self, and Family Self, and they showed a significant decrease in Self-criticism. The girls in the selected study showed a significant decline in Family Self, Moral-Ethical Self, and Positive Identity, thus changing in the opposite direction. The Hamilton boys seemed not to have changed except for a decrease in their Total Conflict, which indicated an increase in enthusiasm for life.

The Brookings boys, however, changed positively ($p < .05$) in several areas: Total Positivity, Positive Identity, Behavior, Physical Self, Moral-Ethical Self, Personal Self, Family Self and Social Self.

There are many reasons why the selected boys responded more favorably than the selected girls, in comparison with the Hamilton study, in which the girls responded more favorably. Socio-economic backgrounds may have been different. Those of the Hamilton students were reported as slightly above average. Girls may have identified more strongly with the instructors at Hamilton, and boys may have identified more strongly with the instructor in selection. Girls may have responded more favorably to a year-long, multi-faceted program than to a 12-day, physical education class approach. The classes may have been taught very differently, and subject matter was undoubtedly different. What is important to note is that over-all, both studies showed general improvement of self concept by the majority of students enrolled. Although there may have been other factors involved, it appears that Project Adventure had an affect on peoples' lives.

There are many studies which have been done to evaluate the effect of a wilderness experience on the self concept. The Outward Bound Programs and other wilderness experiences have similar goals and methods to Project Adventure. They seek to provide participants with experiences which will challenge, stretch and bond them together, and ultimately, give participants more self-confidence and a better self-concept. A more extensive review of these studies

is given in Chapter Two, but the basic point to be noted here is that in each of the studies, an improvement in self concept was noted. There was not one study done which demonstrated no change or a decline in self concept over-all. In fact, the Brookings study was rather unusual in that the females declined in their self concept in three of the 12 areas, and showed no change in the other areas. However, the males showed such a strong positive change that the total group still showed a positive significant change.

One of the most unusual studies, and the one which indicated the most drastic change in participants, was Jerstad and Stelzer's study (1973) on the effect of wilderness experience on mental patients. Patients were on a one-to-one basis with supervisors, and were confronted with survival experiences such as rock climbing, rappelling, or living in make-shift shelters for several days at a time. In such a situation, there were no standards to uphold, and encouragement and applause were given freely for any success. Fifty-one patients, ranging in age from adolescent to elderly, and all chronically ill, participated in Jerstad's summer experience. The length of hospitalization ranged from a few weeks to a maximum of 27 years, and previous treatment included shock therapy as well as drugs. All types of mental disorders were represented, including several who had committed murder or rape and were said to be insane. Said one at the base of a cliff, "No wonder they got us out here. You have to be crazy to do that." After their experiences of rock climbing, white water boating or extended nature hikes and camping,

all returned to the mental hospital. One adventurer spoke for many at the end of the experience: "I'm not a patient, I'm a mountain climber." The experience proved so dramatic that within a year, 31 of the 51 patients had been released, including one who had been in the hospital for 24 years.

That the experience and its impact lasts has been borne out by other studies. Thorstenson and Heaps (1973) have documented a study of 21 subjects who went through a wilderness experience and were tested before, immediately after and one year later with the Tennessee Self Concept Scale. Their findings show that the significant improvement in eight out of the ten areas of self concept examined remained one year later. They also reported that subjects have a difficult time adjusting to their new self-image and that a post-survival experience would be helpful in terms of facilitating maintenance of positive changes. In comparison with the Brookings group, these subjects started at a higher level of self concept in every area, and their gains were higher also. They were older (college age), and some were on academic suspension and some were drug users or pushers. There were not nearly as many subjects for this study, but the same test was used (Tennessee Self Concept Scale) and the t-ratio was run to ascertain statistical differences.

Of comparative studies examined, most used the Tennessee Self Concept Scale, all found significant changes on some of the areas of self concept, and except for Project Adventure, none had as large a sample size as this study. The recommendations for a larger sample

size and separate male and female analyses have been met in this study.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to describe the effect of participation in an advanced class of Project Adventure on the self concept of high school students. Ninety-nine students, 36 females and 63 males, were the subjects for the study, which took place from May 1, 1980, to May 20, 1980. All subjects were given the Tennessee Self Concept Scale immediately before and after taking the course. The evaluator worked with the course instructor to help the students understand why they were taking the test. Also, the evaluator visited the classes, participated in some of the activities, and photographed the students in action.

The data from the test used, the Clinical and Research Form of the Tennessee Self Concept Scale, were analyzed by Counselor Tests and Recordings to determine the mean and standard deviation of males and females before and after the course. Further, a t-ratio comparison was done at the Augustana Research Institute employing the SPSS to compare the differences in self concept before and after the course. The total group was analyzed in terms of mean differences, and the males and females were tested as separate groups.

Findings of the Study

The findings of the study were as follows:

1. Males had an enhanced self concept after Project Adventure, showing a positive change in: Total Positivity, Positive Identity, Behavior, Physical Self, Personal Self, Family Self, and Social Self ($p < .01$) and Self Criticism, Net Conflict, and Moral-Ethical Self ($p < .05$).

2. Females had a lowered self concept after Project Adventure, declining in their scores for: Positive Identity, Moral-Ethical Self, and Family Self ($p < .05$). This was opposite of the effect hypothesized.

3. As a total group, there was a significant positive change in the self concept of the Total Positivity (the most significant score), and the Physical Self ($p < .01$), and the Positive Identity, Behavior, Personal Self and Social Self ($p < .05$).

4. Compared to the norms for each category, these scores were significantly lower than national norms taken from 626 subjects of a wide range in age, education, socio-economic status, and positions. Only the Personal Self post-test was very close to the norm. These statistics could provide the basis for a different kind of study on the self concept.

Conclusions

The following conclusions were drawn relative to the hypotheses of the study and based on its findings:

1. There was a significant change in the self concept

of high school students who experienced Project Adventure after their participation in the classes. The change was significant for the following components of the Tennessee Self Concept Scale: Total Positivity and the Physical Self ($p < .01$), and Positive Identity, Behavior, Personal Self, and Social Self ($p < .05$). This change was expected and hypothesized, based on the findings of other similar studies.

2. It was hypothesized that the self concept of girls would be more positively affected than boys as determined by the number of subscales which changed significantly either positively or negatively. The outcome appeared to show the opposite result. The females had a significantly lowered self concept in the following areas: Positive Identity, Moral-Ethical Self, and Family Self ($p < .05$), while the males had a significantly improved self concept in the following areas: Total Positivity, Positive Identity, Behavior, Physical Self, Personal Self, Family Self, and Social Self ($p < .01$) and Self Criticism, Net Conflict, and Moral-Ethical Self ($p < .05$).

Recommendations

Considering the results of this study, the following recommendation is made:

A detailed study should be conducted employing as many researchers as needed. Each phase of Project Adventure should be carefully studied and documented. Each day's activities should be

monitored and closely documented. A careful study should be made of all the variables of the study, including instructor, time of day, length of classes, teaching methods, testing instruments, control groups, subjects and the outside influences constantly present for the subjects. The control group used should be as similar to the test group in every way. If possible, they should be volunteers for the class who are not allowed to participate at this time. Several measures of the self concept should be used as a more accurate picture of the self concept. A follow-up study should be used, measuring the subjects at a later date, possibly one year later or one-half year later.

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APPENDIX A

THE NATURE AND PURPOSE OF THE TENNESSEE SELF CONCEPT SCALE

The Tennessee Self Concept Scale was developed to meet the need for an instrument to measure the self concept. Criteria for this instrument were that it be uncomplicated for the subject, widely applicable, well standardized, and multi-dimensional in its description of the self concept. It was also hoped it would provide a common thread for tying together many research and clinical findings, since the self concept has become such an important means of studying human behavior. A person tends to act in the way in which he perceives himself, and thus a reflection of that view may be helpful in dealing with people in many areas.

The Scale consists of 100 self-descriptive statements with which the subject may paint a portrait of himself. It can be used by anyone who is 12 or older and has at least a sixth grade reading ability. Any aspect of mental health can be recorded in this scale. The Clinical and Research Form was used for this study (Fitts, 1965).

APPENDIX B

DEVELOPMENT OF THE SCALE

Work was begun to develop the scale in 1955 to develop a research instrument that might contribute to the difficult criterion problem in mental health research. It has since proved useful for many other studies. The first step in development was to gather a large pool of self-descriptive items. Items were derived from other self concept tests and from written self descriptions of patients and non-patients. A phenomenological system was developed to classify items. The first part contains 90 items, equally divided as to positive and negative items. The last 10 items are the Self Criticism Scale (Fitts, 1965).

APPENDIX C

THE ADMINISTRATION OF THE TENNESSEE SELF CONCEPT SCALE

There are no special instructions needed for the administration of The Tennessee Self Concept Scale. The subjects use a pencil to blacken in the blank that best matches their answer. However, it should be pointed out that the answer sheet is arranged so the subject responds to every other item on the answer sheet. An answer to be changed should be crossed out and another response circled. Students should be instructed to answer candidly.

APPENDIX D

DATA ON THE VALIDITY AND RELIABILITY OF THE TENNESSEE SELF CONCEPT SCALE

I. Content Validity.

There are a number of checks within the scale. There are 10 items within the self criticism score which are mildly derogatory statements that most people admit as being true for them. Individuals who deny most of these statements most often are being defensive and making a deliberate effort to present a better picture of themselves than is really true. Also, the true-false ratio is a measure of response set or bias, an indication of whether the subject's approach to the task involves any strong bias towards agreeing or disagreeing no matter what the item. Also, in order for the panel of judges who were making up the test to retain an item, the vote on it had to be unanimous. This helped insure that the classification system used for the Row Scores and Column Scores was dependable (Fitts, 1965).

II. Discrimination Between Groups.

Personality theory and research postulates that groups which differ on certain psychological dimensions should also differ in self concept. Fitts has done extensive studies to demonstrate that the differences in personality between psychiatric patients and non-patients; between delinquents and non-delinquents; between the average person and a psychologically integrated person are shown specifically in the results of the test administered to both groups. Psychiatric patients (N = 369) have been compared with non-patients (N = 626) of the norm group. This comparison yielded highly significant (mainly $p < .001$) differences between patients and non-patients for almost every score that is utilized on this Scale. For example, the mean for Total Positivity for patients was 232.0 and for the Norm group 345.57, showing every significant difference as would be expected.

III. Correlations with Other Measures.

Another process of validation is to compare the results of this Scale with other measures for which correlations should be predicted. There is a very high correlation between the Scale and the Minnesota Multiphasic Personality Inventory, done with the Pearson Product Moment Correlation. Correlations done with other personality inventories show a high degree of consistency. The coefficients done between the Tennessee Self Concept Scale and the Edwards Personal Preference Inventory are low, but the nature of the tests contraindicates high linear relationships.

IV. Personality Changes Under Particular Conditions

It is logical to expect that life experiences change one's self concept. The author has done a number of studies to determine if the test would accurately reflect expected variances in self-perception dependent on the life experience. In over a thousand cases, predictions were done on the basis of the Scale's results, and over a 75% success ratio was accomplished. For example, if a person lost his job, he might feel worse about himself, and this would be reflected in a self concept test.

APPENDIX E

COVER LETTER SENT TO ALL PARENTS

June 12, 1980

Dear Parent:

I am seeking to evaluate Project Adventure as a part of my work towards my master's degree at South Dakota State University. It would help me a great deal if you would take a few minutes to answer a few questions and drop your answers in the mail. I have provided a self-addressed stamped envelope for you. Your son or daughter may have mentioned a questionnaire I administered to participants in the Project Adventure Program both before and after the course to establish the participants' feelings about the effect of the program.

I have been fascinated with Project Adventure since last summer when I was introduced to the thirty-foot wire and what it felt like to leap from the wire and be let down on a rope. I am normally very fearful of heights, but my desire for new experiences prevailed, and I felt proud of myself afterwards. I wondered what the whole course could do to someone, especially someone in the dynamics of adolescence. I believe my findings will be of interest to those working with Project Adventure in all areas.

Thank you so much for taking the time to read this letter, and hopefully, to respond. Your quick response to this request will help greatly in the analysis of the Brookings High School Project Adventure.

Yours,

Sandy Jerstad
Instructor, Coach
Augustana College

P.S. If you can fill out a questionnaire, please mail it as soon as possible. Thanks so much.

APPENDIX F

QUESTIONNAIRE FOR PARENTS OF PARTICIPANTS
IN PROJECT ADVENTURE

1. Did your son or daughter have basically a negative or a positive experience in Project Adventure?
2. From your observation, how did this physical education class compare with other physical education classes your son or daughter has taken?
3. Have you noticed any difference in your son or daughter's feeling about themselves after the course was over?
4. Was this class helpful to your son or daughter in any way? If so, please describe.
5. Please share any additional comments or observations you might have concerning your son or daughter's participation in Project Adventure.

THANK YOU SO MUCH FOR TAKING THE TIME TO FILL THIS OUT. PLEASE DROP IT IN THE MAIL AS SOON AS POSSIBLE.

APPENDIX G

A SUMMARY OF RESPONSES TO THE LETTER SENT TO PARENTS

A letter was sent to all the parents of participants in Project Adventure asking them to please fill out the questionnaire and return it to me. Self-addressed and stamped envelopes were included for this purpose. Of the 123 letters sent, 36 were returned. The responses were almost all positive, some very laudatory. They have been categorized and are as follows.

1. Did your son or daughter have basically a negative or a positive experience in Project Adventure?

There was only one negative answer to this question. All other replies were positive. Several parents indicated the experience was very positive or definitely positive, and one parent said her child "loved it."

2. From your observation, how did this physical education class compare with other physical education classes your son or daughter has taken?

Most parents (23) said it was more enjoyable; one parent indicated it was more rigorous but that there was more enjoyment also. Many (14) indicated it was more challenging, interesting and exciting. Other ideas were: "It was better because it allowed more participation and was challenging," and "Certainly the most unusual--this class calls for individual bravery as well as physical effort." The one negative reply said it was average in comparison.

3. Have you noticed any difference in your son or daughter's feeling about themselves after the course was over?

Thirteen replies indicated no response; the rest (23) noticed a change. Many indicated their children seemed to have more self confidence. They also mentioned their child showed more initiative, took more pride in accomplishment, and learned to trust his classmates more.

4. Was this class helpful to your son or daughter in any way? If so, please describe.

The majority (23) of parents said that the program helped their children develop more self-confidence. Parents (19) also mentioned that their children learned they could do more than they thought they could; that they learned to trust others more deeply, and that they learned to subdue their fear of heights.

5. Please share any additional comments or observations you might have concerning your son or daughter's participation in Project Adventure.

Everyone had a comment here. The parent who shared negative feelings explained that the student had a bad experience soon after the class began. Most Parents had positive comments. Many (14) said their children came home and talked about the class a good deal, apparently a rather unusual phenomenon. One parent stated, "We feel it's a wonderful thing to place all participants at the same level giving each one the same opportunity to achieve success, unlike other sports where only the 'best' can perform." Another parent spoke of the

appreciation her daughter had of being able to hold the rope for others as they climbed. Others (18) spoke of increased levels of trust and self-confidence.

APPENDIX H

DAILY SCHEDULES OF PROJECT ADVENTURE CLASSES

Day One.

1. Warm-ups and movement: 25 side straddle hopes, 25 click the heels, three-legged soccer.
2. Initiative Problems; low beam.
3. Skills and safety: knots, ropes and belaying.
4. Adventure Activities: track walk, low tension.

Day Two.

1. Warm-ups and movement: cardio-vascular movements (hopping up and down on both feet, each foot, sideways, back and front, holding one leg, jump up and touch toes.
2. Initiative Problems: reach for the sky (attempt to make the highest mark on a tree or smooth wall).
3. Skills and Safety: spotting, knots, belaying.
4. Adventure Activities: fidget ladder.

Day Three.

1. Warm-ups and movement: python pentathlon.
2. Initiative problems: all aboard.
3. Skills and safety: falls.
4. Adventure Activities: commando crawl.

Day Four.

1. Warm-ups and movement: frisalevio.
2. Initiative problems: the electric fence.
3. Skills and safety: carabiner and come-along.
4. Adventure Activities: hickory jump.

Day Five.

1. Warm-ups and movement: blindfold soccer.
2. Initiative problems: nitro crossing.
3. Skills and safety: belaying commands.
4. Adventure Activities: inclined log.

Day Six.

1. Warm-ups and movement: aerobic tag.
2. Initiative problems: the 14 foot wall.
3. Skills and safety: rappelling.
4. Adventure Activities: static belaying, low belaying.

Day Seven.

1. Warm-ups and movement: dog shake.
2. Initiative problems: easy climb and easy rappel; difficult climb and easy rappel.
3. Skills and safety: static belaying.
4. Adventure Activities: two line bridge.

Day Eight.

1. Warm-ups and movement: aerobic tag.
2. The remainder of the time was spent on the high log.

Day Nine.

1. Warm-ups and movement: python pentathlon.
2. The remainder of the time was spent on the tyrolean traverse.

Day Ten.

1. Warm-ups and movement: frisalevio.
2. The remainder of the time was spent on the pamper pole.

Day Eleven.

1. Warm-ups and movement: Chicken fight.
2. The remainder of the class time was spent on rappelling off the 60 foot wall and using the zip wire.

Day Twelve.

1. Warm-ups and movement: the clock.
2. The entire class period was spent on rappelling from the 60 foot wall, climbing up the 50 foot wall on small blocks of wood, and riding down the zip wire.

APPENDIX I

RAW DATA

Explanation: the following raw data will be presented in two sections, Girls' Pre-test and Post-test Results, and Boys' Pre-test and Post-test Results. The subjects are listed by number with the first of the two numbers being the pre-test and the second of the two numbers being the post-test. Numbers one to twelve across the top correspond to the following sections:

- Self Criticism = 1
- Net Conflict = 2
- Total Conflict = 3
- Total Positivity = 4
- Positive Identity = 5
- Self-satisfaction = 6
- Behavior = 7
- Physical Self = 8
- Moral-Ethical Self = 9
- Personal Self = 10
- Family Self = 11
- Social Self = 12

APPENDIX I
 RAW DATA
 GIRLS PRE-TEST AND POST-TEST RESULTS

Subject	1	2	3	4	5	6	7	8	9	10	11	12
1	34	4	28	386	140	126	120	71	81	70	86	78
1	43	16	34	350	133	113	104	71	62	66	76	75
2	45	-3	33	289	113	83	93	70	54	54	57	54
2	39	21	31	295	105	91	99	75	48	61	52	59
3	42	4	32	370	130	124	116	76	72	79	69	74
3	36	-4	30	378	132	129	117	83	73	81	65	76
4	46	3	29	345	121	113	111	72	58	71	71	73
4	41	2	30	342	124	110	108	67	68	71	66	70
5	33	-14	28	364	135	117	112	76	76	73	72	67
5	35	-20	30	384	133	129	122	81	81	75	75	72
6	37	6	44	282	96	87	99	57	59	51	56	59
6	34	-25	35	313	127	86	100	61	59	65	61	67
7	38	-20	36	328	124	103	101	66	68	65	67	62
7	35	1	27	305	119	88	98	62	60	63	61	59
8	39	-8	26	340	129	105	106	67	70	68	69	66
8	34	-3	17	331	120	104	107	64	64	72	67	64
9	39	6	36	348	120	111	111	64	74	76	68	66
9	50	21	41	383	141	122	120	73	78	80	74	78
10	34	-9	27	361	123	125	113	79	72	75	64	71
10	34	0	24	360	124	117	119	75	69	74	68	74
11	38	12	36	284	105	83	96	62	56	54	56	56
11	38	1	27	287	106	86	95	57	58	58	56	58
12	15	-15	23	383	140	111	132	81	78	76	78	70
12	24	-8	32	366	136	104	126	76	74	75	79	62
13	32	-6	24	364	132	119	113	74	64	69	83	74
13	34	-22	22	374	135	125	114	78	72	69	79	76
14	42	-2	32	320	115	95	110	63	56	67	66	68
14	38	-7	23	293	95	91	107	65	51	53	61	63
15	42	-9	35	259	105	71	83	66	60	45	48	40
15	42	-2	46	258	101	68	89	66	56	48	50	38
16	33	-9	33	307	121	77	109	55	61	59	70	62
16	29	-27	27	305	116	86	103	52	59	62	69	63
17	40	-15	31	337	129	98	110	76	58	65	76	62
17	42	1	15	347	128	108	111	73	65	68	77	64
18	33	4	30	342	134	95	113	74	63	68	67	70
18	33	-1	25	345	132	102	111	75	64	66	69	71
19	45	5	37	319	127	90	102	56	65	59	73	66
19	43	14	34	294	113	85	96	55	58	54	66	61
20	39	0	24	318	125	98	95	68	61	59	67	64
20	35	13	29	315	118	97	100	66	61	62	63	63
21	36	-16	24	280	110	80	90	51	52	58	56	63
21	40	-2	18	264	93	80	91	48	52	55	49	60
22	36	-9	29	287	109	86	92	60	65	51	56	55
22	35	-14	22	286	103	88	95	63	63	52	52	56

APPENDIX I--CONTINUED

Subject	1	2	3	4	5	6	7	8	9	10	11	12
23	29	-6	20	334	130	94	110	59	59	68	80	68
23	30	-23	27	307	118	87	102	59	56	62	66	64
24	43	18	36	294	112	87	95	51	61	57	60	65
24	43	-1	33	313	124	83	106	59	67	58	63	66
25	26	-14	38	336	126	110	100	69	73	60	68	66
25	31	1	23	339	131	113	95	71	73	63	67	65
26	39	6	30	314	130	83	101	63	61	69	53	68
26	34	19	45	317	127	86	104	68	56	70	53	70
27	41	1	29	237	91	69	77	53	48	42	43	51
27	40	15	23	253	89	78	86	57	49	47	50	50
28	37	-8	24	296	108	93	95	54	57	58	57	70
28	42	-18	26	298	114	85	99	55	60	64	55	64
29	42	11	19	281	104	84	93	56	50	55	55	65
29	43	0	16	288	102	86	100	57	51	58	56	66
30	39	-9	25	365	131	117	117	80	73	71	71	70
30	32	7	11	279	97	90	92	62	55	54	54	54
31	41	-24	38	280	105	88	87	57	56	54	54	59
31	29	-15	17	267	89	90	88	55	49	54	53	56
32	35	7	27	311	122	84	105	67	63	60	62	59
32	34	13	35	315	126	78	111	66	64	60	65	60
33	40	7	31	343	113	122	108	59	62	64	82	76
33	34	9	41	271	100	78	93	59	50	58	55	49
34	36	1	31	371	141	114	116	73	82	75	64	77
34	42	-25	43	395	138	132	125	79	83	84	73	76
35	39	-3	27	277	103	88	86	52	57	56	60	52
35	6	6	26	268	92	93	85	55	56	54	50	53
36	44	4	28	352	135	109	108	71	75	69	68	69
36	42	15	21	335	129	102	104	70	69	65	67	64

APPENDIX I--CONTINUED
BOYS PRE-TEST AND POST-TEST RESULTS

Subject	1	2	3	4	5	6	7	8	9	10	11	12
37	38	32	36	300	108	107	85	65	70	59	50	56
37	34	14	32	348	118	108	122	77	68	75	64	64
38	36	1	39	297	110	96	91	66	60	61	53	57
38	35	-7	43	315	124	99	92	68	65	61	57	64
39	27	30	32	274	84	96	94	56	55	59	54	50
39	34	15	31	277	94	89	94	58	56	52	56	55
40	42	-16	26	334	125	106	103	78	64	70	55	67
40	41	7	41	333	118	106	109	76	62	68	58	69
41	33	17	33	283	90	100	93	56	58	55	56	58
41	45	6	48	278	98	83	97	54	58	44	64	58
42	43	7	39	367	129	124	114	85	76	77	64	65
42	42	24	36	366	128	119	119	84	74	72	74	62
43	30	-32	40	352	133	108	111	76	72	64	75	65
43	36	-11	29	369	134	118	117	70	79	68	82	70
44	34	20	26	312	113	92	107	75	60	60	58	59
44	36	20	28	302	106	87	109	63	65	63	59	53
45	33	31	33	289	95	102	92	56	55	59	62	57
45	39	33	57	329	116	117	96	77	58	66	59	69
46	37	27	33	287	92	96	99	62	54	54	55	62
46	35	-5	43	309	115	90	104	66	58	64	58	63
47	33	25	33	297	108	98	91	62	59	58	57	61
47	36	-8	30	288	111	90	87	57	50	58	64	59
48	33	24	32	288	93	95	100	52	68	57	61	50
48	42	-21	29	319	124	100	95	67	46	69	69	68
49	38	16	30	322	130	112	80	64	69	66	61	62
49	36	-9	27	355	130	112	113	76	74	76	59	70
50	35	8	28	388	136	127	125	71	76	80	82	79
50	43	-8	32	376	132	130	114	72	74	70	77	74
51	35	15	33	275	101	85	89	61	47	54	55	58
51	38	21	45	365	103	73	89	66	47	46	48	58
52	33	-4	18	372	133	124	115	79	64	79	79	71
52	28	-8	22	382	134	123	125	75	77	78	84	68
53	41	20	28	356	120	130	106	86	64	68	76	62
53	40	0	22	328	127	102	99	78	64	66	68	52
54	30	-14	30	316	119	107	90	62	66	65	65	58
54	32	-13	33	345	121	110	114	71	58	79	76	61
55	41	49	53	305	105	111	89	65	60	55	61	64
55	39	4	22	402	141	135	126	88	75	79	85	75
56	43	19	35	383	140	111	132	77	72	85	76	73
56	34	20	44	366	139	117	110	74	74	78	72	68
57	37	-1	27	314	117	97	105	64	61	64	68	62
57	35	-1	23	309	117	87	105	62	63	60	66	58

APPENDIX I--CONTINUED

Subject	1	2	3	4	5	6	7	8	9	10	11	12
58	33	-2	42	266	90	98	78	69	50	51	48	48
58	36	1	57	297	105	112	80	66	56	57	68	50
59	36	6	32	348	132	102	114	73	70	74	69	62
59	34	13	39	375	136	113	126	77	71	78	73	76
60	37	24	32	274	96	78	100	61	46	56	53	58
60	39	55	79	317	128	87	102	71	54	70	59	63
61	31	-4	26	356	131	115	110	75	72	64	76	69
61	36	4	30	344	121	115	108	70	69	61	78	66
62	31	3	17	301	119	95	87	62	62	56	63	58
62	36	-10	20	336	120	117	99	66	60	70	77	63
63	44	27	37	285	100	89	96	54	53	62	62	54
63	42	53	57	279	85	96	98	59	53	49	61	57
64	30	-22	28	284	102	88	94	47	63	59	58	57
64	32	-12	28	312	109	108	95	56	60	60	73	63
65	42	73	75	293	99	95	99	68	56	57	57	55
65	29	4	54	324	110	106	108	75	53	57	77	62
66	38	-2	34	346	121	118	107	70	77	62	83	54
66	34	-6	28	322	111	119	92	66	74	60	70	52
67	43	4	34	286	112	89	85	62	55	54	63	52
67	43	-12	36	304	124	75	105	64	61	62	59	58
68	32	3	31	319	115	104	100	68	60	67	68	56
68	33	6	26	300	114	87	100	65	61	61	61	52
69	32	11	39	271	79	102	90	38	72	55	58	48
69	42	9	49	253	93	88	72	52	54	48	53	46
70	41	71	71	291	14	90	87	64	58	58	58	53
70	39	48	52	308	132	84	92	67	63	64	61	53
71	40	11	23	319	122	99	98	71	50	60	77	61
71	42	-7	27	315	116	99	100	73	54	63	66	59
72	28	7	13	281	88	99	94	63	53	54	58	53
72	34	-14	30	336	124	99	113	67	70	60	68	71
73	41	7	29	301	100	98	103	69	61	58	56	57
73	37	5	33	319	122	97	100	70	62	63	64	60
74	42	-9	41	317	119	106	92	61	65	60	69	62
74	37	-13	41	297	102	99	96	61	59	55	57	65
75	34	92	94	278	91	90	97	58	60	54	56	50
75	35	28	40	312	128	89	95	70	63	65	59	55
76	31	-13	31	305	107	99	99	61	66	60	65	53
76	31	-6	32	336	131	103	102	65	76	67	70	58
77	42	38	40	398	140	135	123	77	84	86	73	78
77	33	2	28	392	136	135	121	78	78	80	82	74
78	44	48	60	330	130	97	103	69	64	68	64	65
78	42	-5	37	335	131	91	113	75	68	58	66	63

APPENDIX I--CONTINUED

Subject	1	2	3	4	5	6	7	8	9	10	11	12
79	36	8	56	302	108	92	109	64	50	53	60	75
79	34	-12	32	286	108	76	102	60	49	51	58	68
80	30	-12	16	286	105	90	91	56	58	59	56	57
80	37	8	36	298	112	93	93	59	53	61	61	64
81	36	23	37	269	85	91	93	55	54	58	53	49
81	38	-4	22	306	106	101	99	64	61	68	56	57

APPENDIX J

THE NATURE AND MEANING OF THE SCORES OF THE
TENNESSEE SELF CONCEPT SCALE

A. The Self Criticism Score (SC). The Self Criticism Scale is composed of 10 items, all mildly derogatory statements that most people admit as true of them. Individuals who deny most of the statements are being defensive, making a deliberate effort to present themselves in a more favorable light than is really true. High scores usually indicate a normal, healthy openness and capacity for self-criticism. Extremely high scores might indicate a total lack of a defense system. Low scores indicate defensiveness, and suggest the Positive Scores are probably artificially elevated by this defensiveness.

B. The Positive Scores (P). These scores were derived from the phenomenological classification scheme already mentioned, the statements seeming to tell three messages: (1) This is what I am; (2) This is how I feel about myself; and (3) This is what I do. These three types of statements form Row 1, Row 2, and Row 3, and added together constitute the Total Positive Score, representing an internal frame of reference within which the individual is describing himself. The scores are also divided vertically, making new categories, representing the external frame of reference with each item and each cell contributing to two different scores.

1. Total P Score. This is the most significant

single score, reflecting the overall level of self esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, are self-confident, and behave in like manner. People with low scores are doubtful about their own worth, see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little trust in their own judgement.

If the Self Criticism (SC) Score is low, high P Scores are unexpected and probably result from defensive distortion. Extremely high scores are deviant, characteristic of paranoid schizophrenics. These scores are referred to as P + N Scores in order to clarify the computations involved.

2. Row 1 P Score - Identity. These are the "what I am" statements, and it is here that the individual describes his basic identity.

3. Row 2 P Score - Self Satisfaction. This score indicates how the individual feels about the self he perceives. It reflects the level of self acceptance. A person may have very high scores on Row 1 and Row 3 and still score low on Row 2 because of his high expectations of himself. The subscores are therefore best interpreted in comparison with each other and with the Total P Score.

4. Row 3 P Score - Behavior. This score comes from those items that say "this is what I do, or this is how I act." It measures an individual's own perception of his behavior.

5. Column A - Physical Self. Here the individual states his view of his own body, state of health, physical appearance, skills, and sexuality.

6. Column B - Moral-Ethical Self. This score tells how a person feels about his relationship with God and his moral-ethical behavior.

7. Column C - Personal Self. This score reflects a person's individual sense of worth, his sense of adequacy as a person and evaluation of himself as a person.

8. Column D - Family Self. One's feelings of adequacy, worth, and value as a family member are reflected here, referring to the individual's perception of self in reference to his closest and most immediate circle of associates.

9. Column E - Social Self. The Social Self reflects a person's general feelings of adequacy in dealing with others.

C. The Variability Scores (V). The Variability scores provide a measure of the inconsistency from one area of self perception to another. High scores mean that the subject is quite variable and low scores indicate low variability.

1. Total V. The Total V is the total variability for the entire record. Well-integrated people usually score below the mean but above the first percentile.

2. Column Total V. This score measures and summarizes the variations within the columns.

3. Row Total V. The Row Total V is the sum of the variation across the rows.

D. The Distribution Score (D). This score is a summary score of the way one distributes his answers across the five available choices in responding to the items of the Scale, and it also demonstrates certainty about the way one views himself. A high score indicates self certainty in terms of one's view of self, and a low score the opposite or it shows defensiveness.

E. The Time Score. The Time Score simply indicates the time it takes to complete the scale. It should be completed in 20 minutes or less.

II. The Clinical and Research Form.

A. The True-False Ratio (T/F). The True-False Ratio shows whether the subject's approach to the task involves any strong tendency to agree or disagree regardless of item content. If scores are high, it demonstrates a person defines himself largely by what he is rather than what he is not. Low scores indicate the opposite.

B. Net Conflict Scores. These are closely correlated with the T/F Score. They measure the extent to which an individual's responses to negative items in the same area of self perception. Any difference between P and N reflects contradiction or conflict.

There are two different kinds of conflict.

1. Acquiescence Conflict. This occurs when the P Scores are greater than the N Scores (P - N yields a positive score or number). This means the subject is over-affirming his

positive attributes.

2. Denial Conflict. Denial Conflict is the opposite and means the subject is over-denying his negative attributes in relation to the way he affirms his positive characteristics.

C. Total Conflict Scores. Some people have high P - N differences which cancel each other out. The Total Conflict score is obtained by summing P - N discrepancies regardless of sign. High scores indicate confusion, contradiction, and general conflict in self perception. Low scores show the opposite except very low scores show rigidity. The conflict scores show conflicting responses to positive and negative items in the same area of self perception.

D. The Empirical Scales. There are six, derived by item analysis, and the scores are purely empirical. They are:

1. The Defensive Positive Scale (DP). The DP is a subtle measure of defensiveness. High and low scores indicate people with distortions.

2. The General Maladjustment Scale (GM). The GM demonstrates psychiatric patients from non-patients.

3. The Psychosis Scale (Psy). The Psy is based on 23 items which best distinguish psychotic patients from other types.

4. The Personality Disorder Scale (PD). The PD is an inverse scale based on 27 items which distinguishes people with personality disorders from people with psychiatric disorders.

5. The Neurosis Scale (N). N measures neuroses using an inverse scale with 27 items. A high score indicates much neuroticism.

6. The Personality Integration Scale (PI). A well-integrated personality is delineated through 25 items.

E. The Number of Deviant Signs Score (NDS). This is a count of the number of deviant features on all other scores, and the NDS indicates with 80% accuracy psychological disturbance.

APPENDIX K

NORM GROUP RAW SCORE
MEANS, STANDARD DEVIATIONS AND RELIABILITY COEFFICIENTS
TENNESSEE SELF CONCEPT SCALE

Score	Mean	Standard Deviation	Reliability
Self-Criticism	35.54	6.70	.75
Net Conflict	-4.91	13.01	.74
Total Conflict	30.10	8.21	.74
Total Positive	345.57	30.70	.92
Identity	127.10	9.96	.91
Self-Satisfaction	103.67	13.79	.88
Behavior	115.01	11.22	.88
Physical Self	71.78	7.67	.87
Personal Self	64.55	7.41	.85
Family Self	70.83	8.43	.89
Social Self	68.14	7.86	.90
Moral-Ethical Self	70.33	8.70	.80