THE EFFECT OF PARTICIPATION IN AN OUTDOOR EXPERIENTIAL EDUCATION PROGRAM ON SELF CONCEPTS

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PREFACE

This study is concerned with the effect of participation in Project Apollo, an outdoor experiential education program, on self concepts.

The author wishes to express his appreciation to his major adviser, Dr. Betty Abercrombie, for her guidance and assistance throughout this study. The author would also like to extend his appreciation to Dr. Mac McCrory for his invaluable assistance in the final preparation of this study. Appreciation is also expressed to the other committee members: Dr. William Adrian, Dr. John Bayless, and Pauline Winter for their guidance and input to this study.

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CHAPTER I

INTRODUCTION

Cognitive performance is often the primary measuring tool for evaluating classroom effectiveness. Unfortunately, what the classroom teaches and what the students need to learn are often in conflict. Classroom instruction often leaves the students partially fulfilled and ill prepared for future relationships.[1]

According to the Carnegie Commission on Higher Education, 91 percent of the undergraduate students agree that collegiate education in America would be enhanced if course work was relevant to contemporary life and problems. In the same study, 83 percent of the students interviewed stated that more attention should be paid to the emotional growth of students.[2]

To lessen the apparent gap beween the campus intellectualism and reality, colleges and universities are offering more non-traditional methods of higher education. Institutions are turning to experiential education to provide students with increased appreciation of mental and physical factors essential for the continuance of human life. Along with an increased appreciation of human and physical factors, a student's self concept is becoming increasingly important to institutional objectives.[3]

The concept of self is pervasive in its importance to all human beings:

> The self is something of which we are immediately aware. We think of it as the warm, central, private region of our life. As such, it plays a crucial part in our consciousness (a concept broader than self), and in our personality (a concept broader than consciousness), and in our organism (a concept broader than personality). Thus it is some kind of core in our being.[4]

Each individual views himself from a unique perspective; one is both the subject and the object of one's observations. The sum of all ideas and feelings that a person may have regarding his/her body, his/her mind, and his/her personal characteristics composes his self concept.[5]

Two basic components of self concept may be identified in the concepts of real self, containing the attitudes and ideas about "what I am really like," and the ideal self, including the ideas of "what I wish or want to be." But these major components, lending consistency to the overall self concept, may also reflect many different facets.

> The self is not rigid and immutable, but flexible, molded by social circumstances. The individual has many potential selves. An individual has the capacity to define oneself as warm or cold, dominant or submissive, sexy or plain.[6]

Although flexible in its parts, the generalized consistency of self concept is of great value to the individual.

> Self-concept constitutes an individual's means of viewing himself and the surrounding world. He interprets his environment and the people in it in the light of his self conceptions, and his problem solving and rock behavior is based upon and limited by these same concepts of self. The insights he has are mediated by his self-process and he tests reality in terms of the image he has drawn of himself.[7]

Self influences and is influenced by all the situations the individual encounters.[8]

An increasing number of institutions (Murray State University, Dartmouth College, Eastern Washington University, Evergreen State University, Mankato State University, and Prescott College) are utilizing challenge programming to improve student self concept.

Students appear especially responsive to the combination of physical stress, mental challenge, group encounter, and individual awareness. With this in mind, many institutions are using outdoor challenge activities to promote an attitude that encourages discussion and leads to a reasoned and responsible approach to personal problems and social conflicts.

Because Project Apollo provides such a situation for students, both physically and psychologically, this program appears to be a suitable context in which to study the effects of participation upon self concept.

Statement of the Problem

This study was to determine if participation in a physically and psychologically designed outdoor experiential education program had any effect on self concept; specifically, this study examined the effects of the Project Apollo experience on the self concepts of male and female participants.

Need for the Study

The following null hypotheses were tested in this study:

1. There will be no significant difference at the .05 level of confidence between pre test and post test scores utilizing the "How I

See Myself" scale. (A decreased total score would indicate a more positive self concept within the individual.)

2. There will be no significant difference at the .05 level of coincidence between pre test and post test scores utilizing the "How I See Myself" scale for male and female participants.

Delimitations

1. The study was conducted using the "How I See Myself" Scale developed by Ira J. Gordon.

2. The "How I See Myself" scale was administered to all students participating in Project Apollo during May and June of 1982.

Limitations

1. The Hawthorne Effect may exist in that students may answer in a preconceived manner. To offset this phenomenon, the students were cautioned to answer with honesty.

2. No follow-up testing (longitudinal investigations) procedure was planned to determine if any self concept changes were lasting after the initial investigation. Consequently, any noticeable effects may be of short term duration.

3. Internal validity may have been affected by testing--with the exact same pre-post test--students may "second guess" the post test from prior experience.

Definition of Terms

Outward Bound Educational Process - Outward Bound, originally a nautical phrase referring to a ship leaving its harbor, was the title

given to a school established by Kurt Hahn during World War II. The process of Outward Bound schools involves taking groups of people to unfamiliar surroundings, instructing them in some outdoor skills, and involving the group and individual with structured stressful situations. The group encounters such problems as group dynamics, group problem solving, and individual reactions to stress and decision making. The group is supervised by an instructor and guided or directed as needed. Outward Bound situations include such activities as mountaineering, expeditioning, canoeing, rock climbing, backpacking, trust exercises, and solo experiences.

Stress-Challenge Activities - Activities used involve the utilization of apparent dangerous, high risk, or uncomfortable situations. The risks or dangers, although mostly simulated, may become involved and real. The student perceives danger while the instructor controls the situation. Through the use of stress-challenge activities, the elements of fear and coping with an unknown situation can be utilized in a controlled manner.

Outdoor Education - A methodology used combining direct experience, exploratory discovery approach, and multisensory learning to teach through or for the natural outdoor environment. Outdoor education is intended to supplement and complement the indoor classroom rather than to replace it. Outdoor education utilizes the out-of-doors as a medium to teach through, thereby adding relevancy and firsthand experience to the students' learning process.

Basic Assumptions

It is assumed that self concept is a personality trait measurable

with a paper and pencil test. In respect to this self concept test in particular, it is assumed that an individual can perceive and distinguish his real self from his ideal self. It is also assumed that the "How I See Myself" test is a valid and reliable measure of self concept.

END NOTES

[1]Paul Risk, "Effects of an Experimental Wilderness Survival Experience on Self Concept, Personality, and Values," Dissertation Abstracts International, 1976, p. 36.

[2]Seymour Robbins, "Outdoor Wilderness Survival and Its' Psychological and Sociological Effects Upon Students in Changing Human Behavior," Dissertation Abstracts International, 1976, p. 35.

[3]Alan Ewert, "The Effects of Outdoor Adventure Activities Upon Self Concept," Dissertation Abstracts International, 1977, p. 8.

[4]Gordon W. Allport, Pattern and Growth in Personality (New York, 1961), p. 110.

[5]Arthur T. Jersild, The Psychology of Adolescence, 2nd ed. (New York, 1963).

[6]Kenneth J. Gergen, The Concept of Self (New York, 1971), p. 43.

[7]John E. Horrocks and Dorothy W. Jackson, Self and Role (New York, 1972), p. 78.

[8]Sharon Koepke, "The Effects of Outdoor Bound Participation Upon Anxiety and Self Concept," Dissertation Abstracts International, ed. 1973.

CHAPTER II

REVIEW OF THE LITERATURE

The review of related literature was conducted to determine the need for this study, to decide whether similar studies had been completed, and to examine the methods and procedures used by similar studies.

A survey of the literature concerning self concept and participation in outdoor experiential education programs revealed only a few studies relating these theories to situations such as are found in the Project Apollo program. However, a number of related studies were reviewed.

A summary of the literature which was most clearly related to the study will be presented in the following order: self concept, Outward Bound educational process, Project Apollo, and studies of programs utilizing outdoor experiential educational concepts.

Self Concept

The theoretical basis of self concept is discussed in the following paragraphs. Of particular interest to this study will be the significance of the self concept, real and ideal self concepts, and changes in self concept.

The effect of social activity upon the concept of one's self was particularly stressed by Mead. Self is first developed through an

organization of the particular attitudes of others toward one another; there follows an organization of attitudes of the generalized other or the social group to which the individual belongs. Self is therefore developed; it is not present at birth.[1]

Combs and Snygg have approached the conception of self through the Phenomenal Field Theory. Within his perceptual field, an individual can differentiate certain parts as characteristic of self; self concept being the basic core of these perceptions. Specifically, Combs and Snygg have defined self concept as ". . . those parts of the phenomenal field which the individual had differentiated as definite and fairly stable characteristics of himself."[2] "Self concept encompasses the many individual perceptions of self and organizes them into a symbol or generalization of self which facilitates dealing with self; self from the individual's basic frame of reference."[3]

Wylie, in her extensive review of self concept literature, pointed to the importance of self concept in the prediction of behavior. When setting a level of wanted performance on a certain task, the self-accepting person would have a small, positive discrepancy between performance level and goal. Self-projecting people, however, would set goals they could easily exceed or set goals far beyond their capabilities. A low degree of phenomenal self-regard could indicate either good adjustment of the pinnacle of problems.[4]

The concept of self is paramount; it constitutes "some kind of core in our being."[5] Levels of self regard are not predetermined: the perception of self is not innate, but developed post birth. Allport has developed a taxonomy of seven levels in the development of self concept: (1) a sense of bodily self; (2) a sense of continuing

self identity; (3) self esteem or pride; (4) the extension of self; (5) self image; (6) the self as a rational coper; and (7) propriate striving, the pursuit of long range purposes and goals. According to Allport, these levels originate as the newborn begins to differentiate his body from the world around him; they culminate in the adolescent's pursuit of long range goals. Allport designated the developed sense of self as the "Proprium," in which the self is experienced as the object of knowing and feeling.[6]

Whereas the development of a sense of self is truly established during adolescence, the adolescent is continually concerned with the question "Who am I?" Rosenberg credited this preoccupation with self as a result of the many decisions, changes, and unusual status ambiguity experienced by the adolescent. The self concept being established includes attitudes in general such as direction, intensity, salience, importance, clarity, stability, and consistency.[7] At the same time, attitudes involving self are unique. The self is reflexive because self is both the subject and object of observations. A self concept can never be totally objective and distant. An individual's attitudes toward himself delineate what he is and what he is not; they define his self image. This definition of self, in turn, regulates the relationships of the individual to other people, objects, and situations.[8]

Coopersmith believed that the self concept is multidimensional, reflecting diverse experiences, attributes, and capacities; self includes different emphases during the process of abstraction. For a child, abstractions dealing with self may be undefined. Additional experiences, however, give perspective and symbolic representation to

the concept of self, and abstractions become more precise and complex. Self concept expresses "an attitude of approval or disapproval" and therefore constitutes "a personal judgement of worthiness."[9]

In the final analysis, an individual's only reality is himself; each person must build an identity to interact and cope with the environment. Thus, the self concept involving man's attempt to define and understand himself is of vital importance for each individual.[10]

The self concept has been described by Jersild as "All the ideas and feelings a person has regarding the properties of his body, the qualities of his mind, and his personal characteristics."[11] This basic sense of self may be differentiated into concepts: (1) the real or actual concept of "what I am," and (2) the ideal concept of "what I would like to be." The concept of actual self includes conscious attitudes of approval and disapproval and convictions about worthiness or unworthiness. These attitudes may be generalized into an overall self-accepting or self-rejecting concept.[12] The ideal self involves goals that are vigorously pursued, aspirations that appear distant or dim, and the pursued attainment of weak or unattained areas of self. The containment of these strivings may range from unrealistic dreams to somber ideas of improvement within reach.[13]

The interrelationship between ideal and real self may serve as an indication of the individual's level of adjustment: the greater the difference between real and ideal self concepts, the more difficult the problems of adjustment become.[14] The person who behaves in manners contrary to his own ideals or self-expectations is possibly confronted with feelings of inferiority, guilt, and/or anxiety.

Therefore, successful therapy for self-rejecting individuals would reflect a decrease in the gap separating real and ideal self concepts.

The complete perception of self is based on the concepts of real and ideal selves. A person's value system can form the basis for ideal self; real self, however, is a result of the attempting to hypothesize selves according to perceived situational demands.[15] Although real and ideal self concepts are basic components of a sense of self, neither concept is totally unalterable.

Changes in self concept can occur throughout the life span of a person. Change is continually taking place in the phenomenal self as the individual perceives the varying reactions of others to one's self. Many changes are only peripheral. Real fundamental changes in self concept may be more gradual and subtle. Indeed, substantial change in self concept may be inhibited because individuals tend to: (1) ignore experiences which are contrary to self concept, and (2) select perception so as to confirm the established view of self.[16]

The self concept may be more malleable before it has been firmly established; however, important personality changes may occur after childhood. The theory that personality is more plastic in infancy and childhood than in adulthood has not been fully proven; changes may be affected during childhood in some respects, but not in other ways.[17]

Gergen recognized a basic consistency to self concept, but at the same time acknowledged the multiplicity of self perceptions that vary according to situations. Indeed, the self that is presented at a certain time is influenced by other people, interaction with environment, and personal motivation. Within the consistency of self there is differentiation according to specific situations. Therefore, as

Gergen stated, "We are made of soft plastic, as molded by social circumstances; the self is remarkably flexible."[18] The adoption of a particular self or mask may be conscious at first, but individuals come to believe that the masks they wear are real. Gergen recognized the many potential selves within the individual. Social conditions help determine which option will be chosen. Therefore, self concept is not a permanent, immutable characteristic of the individual. Other people or the environment may affect changes in one's view of one's self.[19]

Outward Bound Educational Process

The outdoor educational experience formulating the basis of Project Apollo is the stress-challenge methodology utilized by Outward Bound. A brief summary of the origins, basic concepts, past and recent history, and the present applications of Outward Bound follow.

In trying to understand how the philosophy behind the original Outward Bound school evolved, one must understand Hahn and the social conditions surrounding his development.[20] Hahn responded to the needs that were around him and was not adverse to adapting his ideas to meet the changing social conditions. His example in this matter may have been his greatest legacy and led the way to what is currently accepted as the Outward Bound Philosophy. This response to present need can be seen throughout the development of the Outward Bound Schools from the very beginning at Aberdovery and the training of young seamen, to leadership training in Nigeria, to dealing with the problem of affluence in American youth. The core of the philosophy has remained to a great extent unchanged, while the methods have changed in sometimes

drastic ways, depending on the need and the environment. Hahn was proud of the fact that his ideas were not new, but rather that he was able to find new methods of using old or others' ideas. Perhaps because his ideas were, in a sense, a synthesis or concensus of many, we find a hint as to the durability and universal application of them.

Hahn was born to German parents of Jewish descent in 1886. He was raised in the Jewish tradition and had the benefits afforded by being the son of a prosperous middle-class family. He was educated at the Wilhelms Gymnasium in Berlin and later studied at Christ Church in Oxford, England and the Universities of Berlin, Heidelburg, Freiburg, and Gottingen.

At the beginning of World War I, he was assigned to the German Foreign Office where he had the task of analyzing the allied press for the prevailing mood within these countries. He labored continuously for a reasonable ending of the war through negotiation. By the end of the war he had become the private secretary to Prince Max of Baden, a German federal prince and heir to the grand Duchy of Baden. At the conclusion of the war, Hahn returned with Prince Max to his castle in Baden and helped him write his memoirs.

In Prince Max, Hahn found a solid supporter for some of the educational ideas he had been developing since he left Oxford. In 1920, with the Prince's support, the Salem School was founded in one of the wings of the castle in Salem. Hahn was concerned with the moral decline among the Germans that existed at the end of the war and the lack of physical fitness among youth, most of whom had suffered malnutrition during the war. He set out to train young people to have moral independence, an ability to choose between "right and wrong,"

and an improvement in their physical health. These themes persist through all of Hahn's educational thoughts and are developed in various ways in the programs he started, most notably Outward Bound.[21]

In 1932, Hahn came out publicly against Hitler as a result of the Potempa incident, where a young communist was kicked to death by storm troopers, who later received Hitler's congratulations. In March of 1933, Hahn was arrested and imprisoned. Soon after his imprisonment, Hahn was released because of the influence of friends.

Hahn arrived in England, exiled from Germany, a seemingly defeated man. But Henry Brereton, a man who worked with him at Gordonstown remembers, "There was another factor in the attention that Hahn held for me. He had experienced defeat and was at that very time seeming to recharge his batteries, willing to start off again."[22] So the Gordonstown School was founded in Scotland, fashioned after the Salem School. Brereton listed the things that Hahn regarded as characteristic of Salem that would be demonstrated at Gordonstown:

> Action and thought would not be divided into two hostile camps; steps would be taken to build the imagination of the student of decision and the will power of the dreamer so that wise men of action would have the vision to see the consequences of their decisions; that no boy should be compelled into opinions; but it is criminal negligence not to impel them into experiences.[23]

As a result of what he had experienced in Germany under the rise of Hitler, Hahn now was incorporating into his thoughts a further maturing of the philosophy upon which the Outward Bound Schools were to be developed.

The years that followed the founding of Gordonstown saw Hahn add seamanship to the curriculum because he felt it was necessary to introduce youth to danger and adventure in order to create a learning

environment that would provide what James called, "A moral equivalent of war." From the use of the sea and the increasing interest in the use of the mountains for sport and relaxation by many people, the concept of training for survival became part of Gordonstown's curriculum. Hahn never advocated adventure as an end in itself, but rather as a training vehicle through which youth would mature. It was vital for adventure to be tied together with the concept of service to the community. Through unselfish action and dramatic rescue situations youth would also learn compassion, an element Hahn thought was missing in postwar Britain.

After the start of the war, in the summer of 1940, the Gordonstown School was moved to Wales. It was here that Hahn met James Hogan, who was to become warden of the first Outward Bound School. Hahn then contacted Lawrence Holt, the head of a large shipping firm, for financial support. Holt was concerned by the fact that when their ships sunk, the seamen were often unable or unprepared to survive the ordeal of living in life boats until they were picked up. At this stage, some of the Outward Bound philosophy still known today appears. Hogan said of Holt:

> He deeply regretted the passing of the square rigged ships in which earlier generations of seamen had received their basic training. He believed that, denied engines and complex instruments, men had developed a sense of wind weather, a reliance on their own resources--physical, nervous, and technical--and an almost spiritual sense of fellowship and interdependence.[24]

Certainly, here is a notion which would be accorded universal support from the legions of uncompetitive "humanistic" Outward Bounders of America in the mid-seventies. While their awareness of such ideas comes from snowmobiles and a polluted, mechanized society rather than

the excess loss of life that Holt saw in the Battle of the Atlantic, the basic message is the same.[25] Hahn, Holt, and Hogan, brought together by a historical event, combined their talents to form an institution that has spread throughout the world and has been adapted to a wide variety of other institutions such as Project Apollo, housed at Murray State University.

Outward Bound's Present Philosophy

Relating the humanistic movement to the educational community brings considerable implications for Outward Bound. The priorities of the humanists--self discovery, individual initiative, compassion, and more--flow smoothly with the philosophy and purpose of Outward Bound. Maslow said in Education, Art, and Peak Experience:

> Generated by this new conception of learning, teaching, and education, the concept holds that the goal of education--the human goal, the humanistic goal--is ultimately the 'self actualization' of a person, the development of the fullest height that the human species or a particular individual can come to. In a less technical way, it is helping the person become the best that he is able to become.[26]

This view reflects the basic reasoning behind Outward Bound.

Walso and Colins wrote on the outward Bound process:

> Outward Bound has become one of the leading exponents of adventure based education in America. In the past, the six Outward Bound schools have been the custodian of the process. While the schools' popularity has not diminished, their ability to programmatically supply the demand for an Outward Bound experience has. Their role is changing to that of the steward of the Outward Bound process.[27]

Alshuler, in "Psychological Education," went so far as to identify Outward Bound as one of the nation's prominent centers of affective education.[28]

Outward Bound has been influenced by many segments in society, particularly by school teachers, administrators, and curriculums. Outward Bound appeared to many as a logical first step in correcting the inadequacies of traditional classroom education. It followed logically that Outward Bound would be the prime mover in this effort, and today's adaptations, such as Project Apollo, exist in countless schools throughout the country. The legions of school programs are expanding constantly, perhaps as an indication of the need for "experience" in education.[29]

Project Apollo

Apollo is an outgrowth of a highly successful outdoor adventure series incorporated into the Murray State University Upward Bound Program during the summer of 1971. By taking the best of established outdoor education practices and meshing them with the stress-challenge methdology utilized in Outward Bound schools, a unique educational experience emerged. By discarding the tradition of education as a regimented classroom exercise, the student reportedly produces a more receptive attitude toward himself because of the adventure type methodology and being in the actual "outdoor" environment. Students reportedly return to their classroom more awakened to learning with a more positive self concept with which to achieve their academic potential.[30]

The program has five major components:

1. Experimental Outdoor Education. The objective of this component is a 70 percent increase in academic approaches, exposure, and on-site achievement as measured by pre testing and post testing.

2. Resource Training. This component provides participating staff members with sufficient knowledge to plan and carry out a mini-construct with life objectives and activities, as Project Apollo. The participants thereby return to their own locales as resource personnel for implementing expanded experimental education.

3. Outdoor Living Skills. The outdoor living skills activities are designed to enable the student to function competently in a wilderness environment. The emphasis is not on meeting nature as a foe to be conquered, but rather on compatability with nature through understanding, appreciation, and awareness.

4. Community Conservation Service. The objective of the community conservation service component is for 100 percent of the students to participate in at least one community service project during each course.[31]

5. Human Potential Development. This component has the major implications for this research. Through the involvement of such activities as climbing, rappelling, initiative problem solving, caving, obstacle courses, and group dynamics, the students explore their own self concepts, awarenesses, concerns for the values of others, attitudes, and feelings. Emphasis is placed on positive reinforcement and value clarification.

Students are presented with a series of progressively more difficult and seemingly impossible tasks and asked to master them. During debriefing sessions, these problems are treated as symbolic to obstacles in everyday life and are the crux of reported phenomenal growth patterns in such areas as self imagery, confidence, autonomy, and interpersonal behavior.

This component is further divided into specific activities, purposes, and benefits:

Activities	Purpose and Benefits
Quiet Games and Initiatives	
Basically short term, low intensity problem solving activities, centered around minimumn equipment in impromptu situations, calling for improvisation and team work.	1. Overcoming initial group hesitation. 2. Breakdown of social barriers. 3. Getting to know each other. 4. Beginning to use mental and physical skills in problem solving. 5. Learning techniques of spotting (group safety). 6. Communication skills.
Team Initiative Course	
A series of 15 different obstacles constructed of rope and wood, each being a different type of group challenge; a tight tunnel, a high wood giant ladder, swinging tires, slack wire, etc. A permanent facility nested in a secluded forested hillside.	All of the above (1,2,3,4,5,6) plus: 7. Forces a group to use all the group's resources rather than just those of certain individuals.
Individual Ropes Course	
A series of 15 different obstacles constructed also of wood and rope, each being a different type of individual challenge. One event flows to another for a step by step completion of the course. On this course some events get as high as 35 ft. above the ground; an inclined log, postman's walk, flea jump, swinging log, etc.	To provide increased self confidence in dealing with height, balance, fear, and strength.
Rock Climbing	
Ropework knot tying care and handling coiling use of slings Rappelling Relaying Climbing technique	1. An exciting and exhilarating experience. 2. A facing of fears. 3. An activity of individual freedom. 4. An activity of group control. 5. A making of individual decisions.

Activities	Purpose and Benefits
	6. An outbreak of peer pressure. 7. A learning of individual responsibility. 8. A learning of group responsibility. 9. An experience in trust. 10. An experience in environmental appreciation.
Canoeing	
Techniques river lake Safety swamping and rescue Portaging Expedition Planning	1. Team work, pairs of two, three, or six. 2. Vehicle for exploration of lake and river communities. 3. Vehicle to reach historical sites. 4. Opportunity to examine water quality and effect of water on land forms.
Swimming	
Drown proofing Long distance swim	1. Water safety 2. Individual initiative 3. Individual tests of endurance.
Orienteering	
Topographic map interpretation Compass techniques Sport orienteering Navigation in remote or unfamiliar areas	1. Interpretation of land forms and types. 2. Chances to make major decisions and live with those decisions. 3. Team work 4. Self-reliance 5. Adventure 6. Endurance 7. Environmental awareness
First Aid	
Most first aid is taught in simulated situations.	1. Concern and involvement for other people. 2. Self-reliance

Activities	Purpose and Benefits
Campcraft	
Outdoor cooking Shelter construction Campsite locations Use of wood tools	1. To become more self-reliant in two basic necessities of life--food and shelter.
Cave Exploration	
	1. Examination of the following states of mind: a) fear of the unknown b) fear of darkness c) claustrophobia d) intensification of the senses other than sight e) total group interdependence 2. Cave ecology a) cave formations b) simple cave food web
Solo	
A student is placed on his solo site by an instructor--does not leave site--and is checked periodically by instructor, and then picked up after one, two, or three days. Minimal food and equipment is supplied.	1. Contemplation 2. Introspection 3. Self-reliance 4. Reflection 5. Survival skills
Expedition	
A journey of several days over land and water which is broken down into periods of travel, rock climbing, trekking, and most of the other skills the students have been taught throughout the course.	A final test over most of the above.

The uniqueness of Apollo is its target area: the high school student and young adult, a difficult age level to reach. The "adventure" type methodology is extremely appealing to this age level, and may allow instructors to accelerate their on-site academic approach at a much higher level than the traditional outdoor education program.

Upward Bound project directors from all regions are sent recommended criteria and encouraged to send students they feel would benefit most from the experience. Criteria include variables such as age, sex, personality, self confidence, and ethnic distribution. Over 2,300 students, representing 300 Upward Bound Projects from 42 states and Puerto Rico, have participated in Project Apollo since its inception in 1973.[32]

Related Studies Concerned With Outward Bound

Clifford and Clifford investigated the effects of the Outward Bound experience at the Colorado School on 36 boys ranging in age from 16 to 21.[33] The following tests were administered shortly after arrival at the school and just prior to departure following the course: the self rating scale, the self description scale, the ideal description scale, and the word meaning test. A counselor rating scale was completed by a counselor for each participant. In general, self concepts were intially found to be relatively positive; completion of the Outward Bound process demonstrated a tendency toward a greater degree of positive self rating and self description. However, the bulk of this positive change was accounted for by those boys with a relatively poorer initial self concept. Little change was found in the ideal self concept. As a result, the discrepancy between real and ideal self concepts became smaller as real self concepts became more positive. Changes were found to be general as related to the initial level of self concept.

In a study by Koepke concerning the effects of the Outward Bound process upon anxiety and self cncept, it was found that Outward

Bound's participants viewed themselves more positively, and the gap between real and ideal perception was decreased.[34] Employing pre testing and post testing procedures, the analysis involved 23 scales of the Gough Adjective Checklist to delineate both real and ideal self concepts. The sample included 33 male and 11 female participants (ages 16-38 years) in a 23 day Colorado Outward Bound course.

A more complete study using the Outward Bound program was executed by Kelly and Baer.[35] This two year study was conducted to determine if the Outward Bound experience was more effective in preventing recurring delinquent behavior than the traditional training school experience. The Colorado, Minnesota, and Hurricane Island Outward Bound schools were used as the experimental programs. The Lyma School for Boys, in Massachusetts, served as the control training programs. Sixty delinquent boys were enrolled in Outward Bound, and 60 matched boys remained in training schools.

The Jesness Inventory and Semantic Differential scales designed to measure both real and self concepts were administered before and after the Outward Bound experience. The post testing of personality factors revealed improved social attitudes. The specific area of self concept also significantly improved for these subjects. A 37 percent recidivism rate was found in the control training group, while the experimental group reported a 20 percent recidivism rate. Outward Bound seemed to have a positive effect upon the self concepts of delinquent youths.

The results of a doctoral dissertation by Winkie of Rutgers University substantiated the claims of positive growth in self concept through an Outward Bound school course. Winkie's dissertation, "The

Effects of an Outward Bound School Experience on Levels of Moral Judgement and Self Concept," utilized the Tennessee Self Concept test and Rest's Defining Issues Test.[36]

The sample included 147 men and women from various geographical backgrounds within the United States. The methodology included a pre/post testing procedure with two study groups. Group A, the control group, was given the pre test immediately prior to the 26 day course and was post tested 130 days after the Outward Bound experience. Group B, the non-treated group, was pretested one month before the course and immediately before the Outward Bound experience. Means of the treated group when compared to the means of the non-treated group showed a significant movement toward higher levels of moral judgment and self concept.

Related Studies Concerned With Self Concept

Individual self concept changes have been observed in a variety of situations. Heaps and Thorstenson investigated the results of an outdoor survival course at Brigham Young University. The counseling form of the Tennessee Self Concept Scale was administered to 21 subjects (7 males and 14 females) in a pre/post test fashion. The course was similar to the Outward Bound process. All evaluated categories of data demonstrated a marked increase of scores, except for that of self criticism. The categories showing a positive increase included: self esteem, identity, self satisfaction, behavior, physical self, moral-ethical self, personal self, family self, and social self.[37]

A paper by Meinke supported the belief of a relationship between self concept and learning. The paper described a study of 36 college

students with varying degrees of self concept. The students were categorized according to high positive or low positive self concepts. After categorization, the students attempted four concept attainment problems. This measuring instrument was a modification of the Q sort technique constructed by Engel. Results of the study indicated that those subjects having a greater positive self concept attained abstract concepts more readily.[38]

A doctoral dissertation by Risk focused on the effects of a wilderness survival experience on self concept. The study was designed to measure self concept, personality, and values before and after a 12 day wilderness survival experience. Eleven participants (six male and five female) were taken to an uninhabited island in Lake Michigan, after they had participated in a 10 week basic wilderness survival course.

Instruments utilized included the "Tennessee Self Concept Test," the "Sixteen Personality Factors Test," and "Roheach's Value Survey." A pre/post test methodology was used. Changes, in order to be considered significant, were required to exhibit a two-tailed probability of .05 or less. Post test scores indicated significant changes in six categories. They included: total positive, self satisfaction, physical self, moral-ethical self, defensive positive, and general maladjustment. All categories showed positive change, which indicated improved self concept.[39]

A master's thesis, conducted by Cleland at the United States Air Force Academy in 1976, studied the effects of a 12 day survival training program on the self concept of Air Force personnel.[40] Testing instruments included: a self rating scale and a semantic

differentiated format, utilizing a pre/post test methodology. Forty-three students took part: 34 officers and 7 non-commissioned commissioned officers. Cleland regarded the test data as substantiating his hypothesis that survival training would produce an increase in a student's self esteem and feelings concerning his future. The focus of control data indicated that after survival training the student felt better suited to control his own destiny. Cleland summarized that, generally speaking, survival training produced a change to more positive self concept.

A study of Naches and Roberts examined the effects of Outward Bound adaptive programming on high school students.[41] The program, entitled "Dare to Care," involved a high school personality questionnaire, a student attitude survey, and a staff rating scale. Three groups of students--top students, volunteers, and potential dropouts--were utilized. Results of the study indicated all of the students involved in the program became more outgoing, affected by feeling, assertive, tenderminded, and self controlled. It was also shown that the potential dropouts produced the most significant personality changes.

Kesseleim has advocated the use of Outward Bound type programs in his "The Reason for Freezin'" as a rationale for outdoor activity as experiential education.[42] Kesseleim contends that there are five elements common to an outdoor adventure activity: environmental contrast, physical activity, intentional use of stress, a small group context, and the employment of newly acquired knowledge and skills. Together these elements contribute to an enhanced self concept.

Kesselheim believes that self concept is of such importance that it ranks among the top three or four aims of education.

The importance placed upon self concept is supported by Dan and Diane Meyer. They stated that, "Perhaps the most important determinant of a person's future is self concept."[43]

Fisher also supported the increased importance placed on self concept.[44] He contended that what one thinks and feels about one's entire self is greatly influenced by what one thinks and feels about one's body.

In 1972, a study by Davis focused upon the effects of "risk" activity upon a person's self actualization.[45] The "risk" activities involved were rock climbing and rappelling. The students participating in the study were Outward Bound graduates. Results of the study indicated that increased self awareness and self actualization can come through participation in adventure type activities; that the conquering of fear results in new levels of self awareness and self confidence; and that rock climbing has served as the impetus for self reflection and self growth.

Summary

This chapter presented a review of related literature on Outward Bound type programs and their effect on self concept. The majority of the studies focused on two areas: (1) the Outward Bound educational process, and (2) self concept. Most studies indicated some change in self concept after exposure to an experiential outdoor educational process.

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CHAPTER III

METHODS AND PROCEDURES

This chapter is concerned with the methods and procedures involved in determining any significant changes in the self concepts of Project Apollo students. This will include: subjects, programs, measuring instruments, procedures, methods for collection of data, and methods of analyzing the data.

Selection of Subjects

A total of 113 participants were involved in the study, with ethnic, age, and sex distributions as shown in Table I. Fifty-eight subjects participated in a six-day Project Apollo course and 55 subjects participated in a six-day program designed to acquaint the subjects with university life at Murray State University.

Program

This study was not concerned with the Apollo program itself, but instead with this program's effect upon the self concepts of male and female participants. The following description is of the program as structured and conducted by Project Apollo; no modification of this program was made by the researcher.

Project Apollo offered two types of courses: the Athena course and the Poseidon course. The Athena course consisted of four days of

on-site exposure and was structured around the sending school's academic year calendar. The Athena course began with orientation on Thursday evening and terminated with a debriefing on the following Monday evening.

TABLE I

SUBJECT DISTRIBUTION

Subjects	n
Black	56
White	57
Total	113
15 and Under	35
16	54
17	31
18 and Over	17
Total	113
Male	56
Female	57
Total	113

Seven Athena courses were offered during the fall semester of 1981, and eight during the spring semester of 1981. Each Athena series consisted of 24 students divided into two crews of 12 and two Apollo instructors. Groups were divided to reflect diverse sexual, urban/rural, and racial/ethnic characteristics.

The Athena course included instruction skills in such activities as orienteering with map and compass, initiatives and rope courses, spelunking, rock climbing and rappelling, canoeing, back packing, and general expeditioning. Each crew was purposely exposed to a variety of environments and skills. Opportunities occurred for short exercises in several academic disciplines such as field biology, chemistry, astronomy, plant and wildlife identification, and creative writing.

The Poseidon course consisted of six days of on-site exposure and was offered only during the summer months. The Poseidon course began with orientation on Monday evening and terminated with an intensive debriefing six days later.

Three Poseidon courses were offered during May and June of 1982. Poseidon courses offered advanced skills in all program components included in the shorter Athena course and culminated with a solo and a final expedition by the subjects. All experimental subjects in this study participated in a Poseidon course.

Description of the Testing

Educators have long felt that the way in which the individual sees both himself and school influences his motivation and achievement. The problem confronting instructors is a rapid, reliable, and valid means of obtaining an estimate of the individual views of self and school. As a partial answer, the "How I See Myself" scale was developed by Ira J. Gordon, Professor of Education, University of Florida. For the purpose of this measure, self concept is defined as the way an individual reports on himself. It is recognized that this

is a restricted definition. There are other definitions of self concept which utilize inference from behavior or from projective techniques. This definition was selected because it lends itself to ease of administration.

The developnment of the "How I See Myself" scale began in January, 1959, for use with a group of pupils of the P. K. Yongr Laboratory School of the University of Florida. The original scale was then revised to make the language less ambiguous. A basic assumption of this scale is that the student reports on himself and his view of his body, peers, and emotional control.

The best use of this scale was determined to be for group comparisons rather than for the assignment of an individual student for instructional purposes. The items for the scale were developed from the material in Jersilds' "In Search of Self." An open-ended composition approach was utilized, and the responses were then categorized. Based upon these categories, a 42 item scale was developed.

In the development of the items, reliability was assessed on the basis of the configuration of scores of an individual. The factors (teacher, appearance, body build, academic achievement) were used, standard scores derived, and test-retest reliability coefficients obtained. They ranged from a .82 on teacher-school to a .59 on academic achievement. Based on this limited sample and factors with a small number of items, the reliability coefficients obtained were high enough to indicate that the "How I See Myself" scale was reliable for use with groups.

In relation to content validity, there is considerable debate about self report as a legitimate means of measuring self concept.

Here, self concept is operationally defined as the reported portion of one's self. The truthfulness of self report, to some degree, is a function of the test instruction and the nature of the items asked. The factor scores show that, generally, pupils rate themselves slightly higher than the midpoint on the scale.

Procedures

The "How I See Myself" scale was administered to 58 students participating in Project Apollo, and 55 students participating in the control program. The students were informed of the test purpose and given specific instructions concerning the question procedure and confidentiality of responses. Participants within the study were advised to answer questions as they honestly felt and not try to "second guess" the test.

The pre test was given to all subjects immediately prior to the experiential and control components. The post test was given on the last day of the programs. Students were allowed to answer the test at their own rate. All tests were administered by a course instructor, following specific instructions from the test manual. All participants were given the tests at one time. Necessary time was allotted so that the students could proceed at their own speed.

Statistical Procedure

Self concept and male/female significant trends were examined in the analysis of data. The previously determined scales of the "How I See Myself" scale were used to delineate self concept. Male and female responses made before and after the experience were compared to

ascertain any significant difference. A psychometrist was assigned the responsibility of conducting the project's evaluation. This individual possessed specific skills, including: the ability to manage large amounts of data and to produce aggregated statistical indices. This data was processed through the Murray State University Testing and Computer Center.

A paired t comparison was utilized to determine any significant change in self concept at the .05 level of confidence. A decrease in score between pre and post test indicates an increase in perceived self concept.

CHAPTER IV

ANALYSIS OF DATA

The purpose of this investigation was to examine the effects of a psychologically and physically stressful experience such as Project Apollo; the particular variable under study was self concept. The specific hypotheses tested included: (1) There will be no significant difference at the .05 level of confidence between pre test and post test utilizing the "How I See Myself" scale, with a decreased total positive score indicating a more positive self concept within the individual; and (2) There will be no significant difference at the .05 level of confidence between pre test and post test for male and female participants.

This chapter presents the analysis of that data by means of the paired t test and the significance of the difference between means of experimental and control groups. Following the Project Apollo course, group scores indicated participants ascribed no significantly fewer positive responses to themselves.

The experimental group of 52 participants scored 212.5517 on the pre test and 202.6724 on the post test. The standard deviation on the pre test was 37.126 and 47.626 on the post test. The t value of 1.25 and the probability of .215 were not significant.

The control group of 55 participants scored 235.4182 on the pre test and 230.7636 on the post test. The standard deviation on the pre

test was 33.009 and 38.7636 on the post test. The t value of .068 and the probability of .495 were not significant (Table II).

TABLE II

GROUP DATA

	Total Experimental Group		Total Control Group	
	Pre	Post	Pre	Post
N	58	58	55	58
$\bar{X}$	212.5517	202.6724	235.4182	230.7636
S	37.126	47.626	33.009	38.180
t	1.25		.068	
P	.215		.495	

The 13 categories included in the group were: Teacher-School, Physical Appearance, Interpersonal Adequacy, Autonomy, Academic Adequacy, Physical Adequacy, Emotions, Girls Social, Boys Social, Peer Relations, Language Adequacy, Body Building, and Self Image. Of these 13 categories, number 4, Autonomy, and number 13, Self Image, indicated that significant change did occur in the experiential group at the .05 level of confidence.

Categories One Through Thirteen

In category number one, Teacher-School, the experimental group of

58 participants scored 13.0517 on the pre test and 12.9828 on the post test. The standard deviation on the pre test was 4.294 and 4.901 on the post test. The t value of .08 and the probability of 0.321 were not significant.

In category number one, Teacher-School, the control group of 55 participants scored 14.1455 on the pre test and 14.2182 on the post test. The standard deviation on the pre test was 3.974 and 4.573 on the post test. The t value of -0.09 and the probability of 0.929 were not significant (Table III).

TABLE III

CATEGORY ONE: TEACHER-SCHOOL

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\bar{X}$	13.0517	12.9828	14.1455	14.2182
S	4.294	4.901	3.974	4.573
t	.08		-0.09	
P	0.321		0.929	

In category number two, Physical Appearance, the experimental group of 58 participants scored 20.3621 on the pre test and 19.2931 on

the post test. The standard deviation on the pre test was 5.851 and 6.035 and on the post test. The t value of .97 and the probability of 0.335 were not significant.

In category number two, Physical Appearance, the control group of 55 participants scored 24.3273 on the pre test and 24.4182 on the post test. The standard deviation on the pre test was 4.865 and 5.435 on the post test. The t value of 0.92 and the probability of 0.357 were not significant (Table IV).

TABLE IV

CATEGORY TWO: PHYSICAL APPEARANCE

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	20.3621	19.2931	24.3273	24.4182
S	5.851	6.035	4.865	5.435
t	.97		0.92	
P	0.335		0.357	

In category number three, Interpersonal Adequacy, the experimental group of 58 participants scored 38.0000 on the pre test and 36.5345 on the post test. The standard deviation on the post test was 7.671 and

9.467 on the post test. The t value of .92 and the probability of 0.362 were not significant.

In category number three, Interpersonal Adequacy, the control group of 55 participants scored 42.5455 on the pre test and 43.0545 on the post test. The standard deviation on the pre test was 6.806 and 8.109 on the post test. The t value of 0.34 and the probability of 0.732 were not significant (Table V).

TABLE V

CATEGORY THREE: INTERPERSONAL ADEQUACY

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\bar{X}$	38.0000	36.5345	42.5455	43.0545
S	7.671	9.467	6.806	8.109
t	.92		0.34	
P	0.362		0.732	

In category number four, Autonomy, the experimental group of 58 participants scored 25.1724 on the pre test and 22.5172 on the post test. The standard deviation on the pre test was 4.791 and 5.165 on the post test. The t value of 2.87 and the probability of 0.005 were significant.

In category number four, Autonomy, the control group of 55 participants scored 26.8727 on the pre test and 25.7091 on the post test. The standard deviation on the pre test was 4.796 and 5.623 on the post test. The t value of 1.17 and the probability of 0.246 were not significant (Table VI).

TABLE VI

CATEGORY FOUR: AUTONOMY

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	25.1724	22.5172	26.8727	25.7091
S	4.791	5.165	4.796	5.623
t	2.87		1.17	
P	0.005		0.246	

In category number five, Academic Adequacy, the experimental group of 58 participants scored 14.5690 on the pre test and 13.5172 on the post test. The standard deviation on the pre test was 0.498 and 0.551 on the post test. The t value of 1.42 and the probability of 0.160 were not significant.

In category number five, Academic Adequacy, the control group of 55 participants scored 15.9636 on the pre test and 15.3636 on the post test. The standard deviation on the pre test was 3.616 and 3.279 on the post test. The t value of 0.91 and the probability of 0.364 were not significant (Table VII).

TABLE VII

CATEGORY FIVE: ACADEMIC ADEQUACY

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	14.5690	13.5172	15.9636	15.3636
S	0.498	0.551	3.616	3.279
t	1.42		0.91	
P	0.160		0.364	

In category number six, Physical Adequacy, the experimental group of 58 participants scored 9.2931 on the pre test and 8.9310 on the post test. The standard deviation on the pre test was 2.791 and 2.852 on the post test. The t value of 0.69 and the probability of 0.461 were not significant.

In category number six, Physical Adequacy, the control group of 55 participants scored 10.3636 on the pre test and 10.1273 on the post test. The standard deviation on the pre test was 2.883 and 2.881 on the post test. The t value of 0.43 and the probability of 0.668 were not significant (Table VIII).

TABLE VIII

CATEGORY SIX: PHYSICAL ADEQUACY

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\bar{X}$	9.2931	8.9310	10.3636	10.1273
S	2.791	2.852	2.883	2.881
t	0.69		0.43	
p	0.461		0.668	

In category number seven, Emotions, the experimental group of 58 participants scored 11.0690 on the pre test and 10.7414 on the post test. The standard deviation on the pre test was 2.093 and 2.607 on the post test. The t value of 0.39 and the probability of 01695 were not significant.

In category number seven, Emotions, the control group of 55 participants scored 11.4909 on the pre test and 11.6909 on the post test. The standard deviation on the pre test was 2.142 and 2.193 on the post test. The t value of -0.48 and the probability of 0.629 were not significant (Table IX).

TABLE IX

CATEGORY SEVEN: EMOTIONS

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	11.0690	10.7414	11.4909	11.6909
S	2.093	2.607	2.142	2.193
t	0.39		-0.48	
P	0.695		0.629	

In category number eight, Girls Social, the experimental group of 58 participants scored 11.1207 on the pre test and 10.7414 on the post test. The standard deviation on the pre test was 2.908 and 3.786 on the post test. The t value of 0.61 and the probability of 0.456 were not significant.

In category number eight, Girls Social, the control group of 55 participants scored 12.4000 on the pre test and 12.3273 on the post test. The standard deviation on the pre test was 2.698 and 2.848 on the post test. The t value of 0.14 and the probability of 0.891 were not significant (Table X).

TABLE X

CATEGORY EIGHT: GIRLS SOCIAL

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	11.1207	10.7414	12.4000	12.3273
S	2.908	3.786	2.698	2.848
t	0.61		0.14	
P	0.546		0.891	

In category number nine, Boys Social, the experimental group of 58 participants scored 11.7414 on the pre test and 11.8793 on the post test. The standard deviation on the pre test was 4.033 and 4.210 on the post test. The t value of -0.18 and the probability of 0.857 were not significant.

In category number nine, Boys Social, the control group of 55 participants scored 13.1273 on the pre test and 13.1636 on the post test. The standard deviation on the pre test was 3.438 and 3.542 on the post test. The t value of -0.05 and the probability of 0.957 were not significant (Table XI).

TABLE XI

CATEGORY NINE: BOYS SOCIAL

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	11.7414	11.8793	13.1273	13.1636
S	4.033	4.210	3.438	3.542
t	-0.18		-0.05	
P	0.857		0.957	

In category number ten, Peer Relations, the experimental group of 58 participants scored 14.5690 on the pre test and 14.2069 on the post test. The standard deviation on the pre test was 3.728 and 4.436 on the post test. The t value of 0.48 and the probability of 0.635 were not significant.

In category number ten, Peer Relations, the control group of 55 participants scored 16.9273 on the pre test and 16.6000 on the post test. The standard deviation on the pre test was 3.288 and 3.286 on the post test. The t value of 0.52 and the probability of 0.603 were not significant (Table XII).

TABLE XII

CATEGORY TEN: PEER RELATIONS

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	14.5690	14.2069	16.9273	16.6000
S	3.728	4.436	3.288	3.286
t	0.48		0.52	
P	0.635		0.603	

In category number eleven, Language Adequacy, the experimental group of 58 participants scored 14.3103 on the pre test and 13.4138 on the post test. The standard deviation on the pre test was 3.840 and 4.031 on the post test. The t value of 1.23 and the probability of 0.223 were not significant.

In category number eleven, Language Adequacy, the control group of 55 participants scored 16.0000 on the pre test and 15.5455 on the post test. The standard deviation on the pre test was 3.868 and 4.077 on the post test. The t value of 0.60 and the probability of 0.550 were not significant (Table XIII).

TABLE XIII

CATEGORY ELEVEN: LANGUAGE ADEQUACY

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	14.3103	13.4138	16.0000	15.5455
S	3.840	4.031	3.868	4.077
t	1.23		0.60	
P	0.223		0.550	

In category number twelve, Body Building, the experimental group of 58 participants scored 9.9828 on the pre test and 9.6552 on the post test. The standard deviation on the pre test was 3.069 and 2.819 on the post test. The t value of 0.60 and the probability of 0.551 were not significant.

In category number twelve, Body Building, the control group of 55 participants scored 11.8909 on the pre test and 11.6364 on the post

test. The standard deviation on the pre test was 3.536 and 3.739 on the post test. The t value of 0.37 and the probability of 0.714 were not significant (Table XIV).

TABLE XIV

CATEGORY TWELVE: BODY BUILDING

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\overline{X}$	9.9828	9.6552	11.8909	11.6364
S	3.069	2.819	3.536	3.739
t	0.60		0.37	
P	0.551		0.714	

In category number thirteen, Self Image, the experimental group of 58 participants scored 19.3103 on the pre test and 18.1034 on the post test. The standard deviation on the pre test was 2.371 and 3.698 on the post test. The t value of 2.09 and the probability of 0.039 were significant.

In category number thirteen, Self Image, the control group of 55 participants scored 19.3636 on the pre test and 18.9091 on the post

test. The standard deviation on the pre test was 3.027 and 3.123 on the post test. The t value of 0.78 and the probability of 0.440 were not significant (Table XV).

TABLE XV

CATEGORY THIRTEEN: SELF IMAGE

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	58	58	55	55
$\bar{X}$	19.3103	18.1034	19.3636	18.9091
S	2.371	3.698	3.027	3.123
t	2.09		0.78	
P	0.039		0.440	

The hypothesis that theorized there would be no significant change in self concept was supported by these findings. Since significant differences were not found in the group data, it was found that the perceptions of self before Project Apollo participation did not change from those perceptions after participation.

An examination of the data revealed that changes did occur, and they were, in general, toward what would be considered positive growth of self concept, but this did not occur at the .05 level of

significance, except for number four, Autonomy, and number thirteen, Self Image. Thus, it appeared that self concept was not significantly changed following the completion of a psychologically and physically stressful experience such as Project Apollo.

The hypothesis that theorized there would be no significant change in self concepts between males and females was supported by these findings. Significant differences were not found in the group data.

The group data for the 27 females in the experimental group indicated a pre test score of 219.6667 and 216.2222 on the post test. The standard deviation on the pre test was 28.420 and 34.327 on the post test. The t value of 0.40 and the probability of 0.0690 were not significant.

The group data for the 30 females in the control group indicated a pre test score of 240.5000 and 230.8000 on the post test. The standard deviation on the pre test was 30.882 and 32.627 on the post test. The t value of 1.18 and the probability of 0.242 were not significant (Table XVI).

The group data for the 31 males in the experimental group indicated a pre test score of 206.3548 and 190.8710 on the post test. The standard deviation on the pre test was 42.820 and 54.582 on the post test. The t value of 1.24 and the probability of 0.219 were not significant.

The group data for the 25 males in the control group indicated a pre test score of 229.3200 and 230.7200 on the post test. The standard deviation on the pre test was 35.046 and 44.650 on the post test. The t value of -0.12 and the probability of 0.902 were not significant (Table XVII).

TABLE XVI

FEMALE GROUP DATA

	Pre	Post	Pre	Post
N	27	27	30	30
$\overline{X}$	219.6667	216.2222	240.5000	230.8000
S	28.420	34.327	30.882	32.627
t	0.40		1.18	
P	0.0690		0.242	

TABLE XVII

MALE GROUP DATA

	Experimental Group		Control Group	
	Pre	Post	Pre	Post
N	31	31	25	25
$\overline{X}$	206.3548	190.8710	229.3200	230.7200
S	42.820	54.582	35.046	44.650
t	1.24		-0.12	
P	0.219		0.902	

The individual category number four, Autonomy, indicated that male participants of the experimental group were significantly affected,

while participants of the female experimental, female control, and male control groups were not significantly affected. The 12 other categories indicated no significant differences between the pre test and the post test.

In category number one, Teacher-School, the 31 males of the experimental group scored 13.8065 on the pre test and 12.6129 on the post test. The standard deviation on the pre test was 4.679 and 5.005 on the post test. The t value of 0.97 and the probability of 0.336 were not significant.

In category number one, Teacher-School, the 27 females of the experimental group scored 12.1852 on the pre test and 13.4074 on the post test. The standard deviation on the pre test was 3.701 and 4.838 on the post test. The t value of -1.04 and the probability of 0.302 were not significant (Table XVIII).

TABLE XVIII

CATEGORY ONE: EXPERIMENTAL/TEACHER-SCHOOL

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	13.8065	12.6129	12.1852	13.4074
S	4.679	5.005	3.701	4.838
t	0.97		-1.04	
P	0.336		0.302	

In category number two, Physical Appearance, the 31 males of the experimental group scored 18.8065 on the pre test and 17.5161 on the post test. The standard deviation on the pre test was 5.918 and 6.418 on the post test. The t value of 0.82 and the probability of 0.414 were not significant.

In category number two, Physical Appearance, the 27 females of the experimental group scored 22.1481 on the pre test and 21.3333 on the post test. The standard deviation on the pre test was 5.333 and 4.922 on the post test. The t value of 0.58 and the probability of 0.526 were not significant (Table XIX).

TABLE XIX

CATEGORY TWO: EXPERIMENTAL/PHYSICAL APPEARANCE

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	18.8065	17.5161	22.1481	21.3333
S	5.918	6.418	5.333	4.922
t	0.82		0.58	
P	0.414		0.562	

In category number three, Interpersonal Adequacy, the 31 males of the experimental group scored 36.2581 on the pre test and 34.4194 on the post test. The standard deviation on the pre test was 8.820 and 10.850 on the post test. The t value of 0.73 and the probability of 0.467 were not significant.

In category number three, Interpersonal Adequacy, the 27 females of the experimental group scored 40.000 on the pre test and 38.9630 on the post test. The standard deviation on the pre test was 5.609 and 7.014 on the post test. The t value of 0.60 and the probability of 0.551 were not significant (Table XX).

TABLE XX

CATEGORY THREE: EXPERIMENTAL/INTERPERSONAL ADEQUACY

	Male			Female		
	Pre		Post	Pre		Post
N	31		31	27	27	27
$\bar{X}$	36.2581		34.4194	40.000		38.9630
S	8.820		10.850	5.609		7.014
t		0.73			0.60	
P		0.467			0.551	

In category number four, Autonomy, the 31 males of the experimental group scored 24.6774 on the pre test and 21.1935 on the post test. The standard deviation on the pre test was 4.847 and 5.498 on the post test. The t value of 2.65 and the probability of 0.010 were significant.

In category number four, Autonomy, the 27 females of the experimental group scored 25.7407 on the pre test and 24.0370 on the post test. The standard deviation on the pre test was 4.752 and 4.372 on the post test. The t value of 1.37 and the probability of 0.176 were not significant (Table XXI).

TABLE XXI

CATEGORY FOUR: EXPERIMENTAL/AUTONOMY

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	24.6774	21.1935	25.7407	24.0370
S	4.847	5.498	4.752	4.372
t	2.65		1.37	
P	0.010		0.176	

In category number five, Academic Adequacy, the 31 males of the experimental group scored 14.0968 on the pre test and 12.7742 on the post test. The standard deviation on the pre test was 3.487 and 4.595 on the post test. The t value of 1.28 and the probability of 0.207 were not significant.

In category number five, Academic Adequacy, the 27 females of the experimental group scored 15.111 on the pre test and 14.3704 on the post test. The standard deviation on the pre test was 4.117 and 3.586 on the post test. The t value of 0.71 and the probability of 0.484 were not significant (Table XXII).

TABLE XXII

CATEGORY FIVE: EXPERIMENTAL/ACADEMIC ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	14.0968	12.7742	15.111	14.3704
S	3.487	4.595	4.117	3.586
t	1.28		0.71	
P	0.207		0.484	

In category number six, Physical Adequacy, the 31 males of the experimental group scored 8.7419 on the pre test and 7.9355 on the post test. The standard deviation on the pre test was 2.944 and 2.954 on the post test. The t value of 1.08 and the probability of 0.286 were not significant.

In category number six, Physical Adequacy, the 27 females of the experimental group scored 9.9259 on the pre test and 10.0741 on the post test. The standard deviation on the pre test was 2.510 and 2.286 on the post test. The t value of -0.23 and the probability of 0.822 were not significant (Table XXIII).

TABLE XXIII

CATEGORY SIX: EXPERIMENTAL/PHYSICAL ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	8.7419	7.9355	9.9259	10.0741
S	2.944	2.954	2.510	2.286
t	1.08		-0.23	
P	0.286		0.822	

In category number seven, Emotions, the 31 males of the experimental group scored 10.9023 on the pre test and 10.1290 on the post test. The standard deviation on the pre test was 1.814 and 2.446 on the post test. The t value of 1.42 and the probability of 0.162 were not significant.

In category number seven, Emotions, the 27 females of the experimental group scored 11.2593 on the pre test and 11.7778 on the post test. The standard deviation on the pre test was 2.395 and 2.547 on the post test. The t value of -0.77 and the probability of 0.444 were not significant (Table XXIV).

TABLE XXIV

CATEGORY SEVEN: EXPERIMENTAL/EMOTIONS

	Males		Females	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	10.9032	10.1290	11.2593	11.7778
S	1.814	2.446	2.395	2.547
t	1.42		-0.77	
P	0.162		0.444	

In category number eight, Girls Social, the 31 males of the experimental group scored 10.6452 on the pre test and 10.4839 on the post test. The standard deviation on the pre test was 3.050 and 4.304 on the post test. The t value of 0.17 and the probability of 0.856 were not significant.

In category number eight, Girls Social, the 27 females of the experimental group scored 11.6667 on the pre test and 11.0370 on the post test. The standard deviation on the pre test was 2.689 and 3.144 on the post test. The t value of 0.79 and the probability of 0.443 were not significant (Table XXV).

TABLE XXV

CATEGORY EIGHT: EXPERIMENTAL/GIRLS SOCIAL

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	10.6452	10.4839	11.6667	11.0370
S	3.050	4.304	2.689	3.144
t	0.17		0.79	
P	0.865		0.443	

In category number nine, Boys Social, the 31 males of the experimental group scored 11.9355 on the pre test and 11.1935 on the post test. The standard deviation on the pre test was 4.746 and 4.778 on the post test. The t value of 0.61 and the probability of 0.542 were not significant.

In category number nine, Boys Social, the 27 females of the experimental group scored 11.5185 on the pre test and 12.6667 on the post test. The standard deviation on the pre test was 3.093 and 3.363 on the post test. The t value of -1.31 and the probability of 0.197 were not significant (Table XXVI).

TABLE XXVI

CATEGORY NINE: EXPERIMENTAL/BOYS SOCIAL

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	11.9355	11.1935	11.5185	12.6667
S	4.746	4.778	3.093	3.363
t	0.61		-1.31	
P	0.542		0.197	

In category number ten, Peer Relations, the 31 males of the experimental group scored 13.5806 on the pre test and 13.3548 on the post test. The standard deviation on the pre test was 3.871 and 5.050 on the post test. The t value of 0.20 and the probability of 0.844 were not significant.

In category number ten, Peer Relations, the 27 females of the experimental group scored 15.7037 on the pre test and 15.1852 on the post test. The standard deviation on the pre test was 3.268 and 3.442 on the post test. The t value of 0.57 and the probability of 0.573 were not significant (Table XXVII).

TABLE XXVII

CATEGORY TEN: EXPERIMENTAL/PEER RELATIONS

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	13.5806	13.3548	15.7037	15.1852
S	3.871	5.050	3.268	3.442
t	0.20		0.57	
P	0.844		0.573	

In category number eleven, Language Adequacy, the 31 males of the experimental group scored 14.4194 on the pre test and 12.8710 on the post test. The standard deviation on the pre test was 3.931 and 4.624 on the post test. The t value of 1.42 and the probability of 0.161 were no significant.

In category number eleven, Language Adequacy, the 27 females of the experimental group scored 14.1852 on the pre test and 14.0370 on the post test. The standard deviation on the pre test was 3.803 and 3.192 on the post test. The t value of 0.16 and the probability of 0.877 were not significant (Table XXVIII).

TABLE XXVIII

CATEGORY ELEVEN: EXPERIMENTAL/LANGUAGE ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	14.4194	12.8710	14.1852	14.0370
S	3.931	4.624	3.803	3.192
t	1.42		0.16	
P	0.161		0.877	

In category twelve, Body Building, the 31 males of the experimental group scored 9.4839 on the pre test and 9.0968 on the post test. The standard deviation on the pre test was 3.086 and 2.902 on the post test. The t value of 0.51 and the probability of 0.613 were not signficant.

In category twelve, Body Building, the 27 females of the experimental group scored 10.5556 on the pre test and 10.2963 on the post test. The standard deviation on the pre test was 3.004 and 2.638 on the post test. The t value of 0.34 and the probability of 0.737 were not significant (Table XXIX).

TABLE XXIX

CATEGORY TWELVE: EXPERIMENTAL/BODY BUILDING

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\overline{X}$	9.4839	9.0968	10.5556	10.2963
S	3.086	2.902	3.004	2.628
t	0.51		0.34	
P	0.613		0.737	

In category number thirteen, Self Image, the 31 males of the experimental group scored 19.000 on the pre test and 17.2903 on the post test. The standard deviation on the pre test was 2.828 and 4.133 on the post test. The t value of 1.09 and the probability of 0.062 were not significant.

In category number thirteen, Self Image, the 27 females of the experimental group scored 19.6667 on the pre test and 19.0370 on the post test. The standard deviation on the pre test was 1.687 and 2.928 on the post test. The t value of 0.97 and the probability of 0.337 were not significant (Table XXX).

TABLE XXX

CATEGORY THIRTEEN: EXPERIMENTAL/SELF IMAGE

	Male		Female	
	Pre	Post	Pre	Post
N	31	31	27	27
$\bar{X}$	19.000	17.2903	19.6667	19.0370
S	2.828	4.133	1.687	2.929
t	1.09		0.97	
P	0.062		0.337	

In category number one, Teacher-School, the 25 males of the control group scored 14.2400 on the pre test and 15.0400 on the post test. The standard deviation on the pre test was 4.539 and 5.466 on the post test. The t value of -0.56 and the probability of 0.576 were not significant.

In category number one, Teacher-School, the 30 females of the control group scored 14.0667 on the pre test and 13.5333 on the post test. The standard deviation on the pre test was 3.513 and 3.627 on the post test. The t value of 0.58 and the probability of 0.565 were not significant (Table XXXI).

TABLE XXXI

CATEGORY ONE: CONTROL/TEACHER-SCHOOL

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	14.2400	15.0400	14.0667	13.5333
S	4.539	5.466	3.513	3.627
t	-0.56		0.58	
P	0.576		0.565	

In category number two, Physical Appearance, the 25 males of the control group scored 22.8400 on the pre test and 22.5200 on the post test. The standard deviation on the pre test was 4.279 and 5.237 on the post test. The t value of 0.24 and the probability of 0.814 were not significant.

In category number two, Physical Appearance, the 30 females of the control group scored 25.5667 on the pre test and 24.1667 on the post test. The standard deviation on the pre test was 5.042 and 5.571 on the post test. The t value of 1.02 and the probability of 0.312 were not significant (Table XXXII).

TABLE XXXII

CATEGORY TWO: CONTROL/PHYSICAL APPEARANCE

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\bar{X}$	22.8400	22.5200	25.5667	24.1667
S	4.279	5.237	5.042	5.571
t	0.24		1.02	
P	0.814		0.312	

In category number three, Interpersonal Adequacy, the 25 males of the control group scored 41.0000 on the pre test and 41.0400 on the post test. The standard deviation on the pre test was 6.813 and 9.307 on the post test. The t value of -0.02 and the probability of 0.986 were not significant.

In category number three, Interpersonal Adequacy, the 30 females of the control group scored 43.8333 on the pre test and 42.9000 on the post test. The standard deviation on the pre test was 6.639 and 7.009 on the post test. The t value of 0.53 and the probability of 0.598 were not significant (Table XXXIII).

TABLE XXXIII

CATEGORY THREE: CONTROL/INTERPERSONAL ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	41.0000	41.0400	43.8333	42.9000
S	6.813	9.307	6.639	7.009
t	-0.02		0.53	
P	0.986		0.598	

In category number four, Autonomy, the 25 males of the control group scored 26.6800 on the pre test and 25.7600 on the post test. The standard deviation on the pre test was 5.429 and 6.213 on the post test. The t value of 0.56 and the probability of 0.580 were not significant.

In category number four, Autonomy, the 30 females of the control group scored 27.0333 on the pre test and 25.6667 on the post test. The standard deviation on the pre test was 4.287 and 5.188 on the post test. The t value of 1.11 and the probability of 0.271 were not significant (Table XXXIV).

TABLE XXXIV

CATEGORY FOUR: CONTROL/AUTONOMY

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	26.6800	25.7600	27.0333	25.6667
S	5.429	6.213	4.287	5.188
t	0.56		1.11	
P	0.580		0.271	

In category number five, Academic Adequacy, the 25 males of the control group scored 15.4400 on the pre test and 15.6400 on the post test. The standard deviation on the pre test was 4.022 and 3.695 on the post test. The t value of -0.18 and the probability of 0.855 were not significant.

In category number five, Academic Adequacy, the 30 females of the control group scored 16.4000 on the pre test and 15.1333 on the post test. The standard deviation on the pre test was 3.244 and 2.933 on the post test. The t value of 1.59 and the probability of 0.118 were not significant (Table XXXV).

TABLE XXXV

CATEGORY FIVE: CONTROL/ACADEMIC ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	15.4400	15.6400	16.4000	15.1333
S	4.022	3.695	3.244	2.933
t	-0.18		1.59	
P	0.8555		0.118	

In category number six, Physical Adequacy, the 25 males of the control group scored 9.6000 on the pre test and 10.0400 on the post test. The standard deviation on the pre test was 3.227 and 3.335 on the post test. The t value of -0.47 and the probability of 0.638 were not significant.

In category number six, Physical Adequacy, the 30 females of the control group scored 11.000 on the pre test and 10.2000 on the post test. The standard deviation on the pre test was 2.435 and 2.497 on the post test. The t value of 1.26 and the probability of 0.214 were not significant (Table XXXVI).

TABLE XXXVI

CATEGORY SIX: CONTROL/PHYSICAL ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\bar{X}$	9.6000	10.0400	11.000	10.2000
S	3.227	3.335	2.435	2.497
t	-0.47		1.26	
P	0.638		0.214	

In category number seven, Emotions, the 25 males of the control group scored 11.6000 on the pre test and 11.2800 on the post test. The standard deviation on the pre test was 2.273 and 2.606 on the post test. The t value of 0.46 and the probability of 0.646 were not significant.

In category number seven, Emotions, the 30 females of the control group scored 11.4000 on the pre test and 12.0333 on the post test. The standard deviation on the pre test was 2.061 and 1.752 on the post test. The t value of -1.28 and the probability of 0.205 were not significant (Table XXXVII).

TABLE XXXVII

CATEGORY SEVEN: CONTROL/EMOTIONS

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	11.6000	11.2800	11.40000	12.0333
S	2.273	2.606	2.061	1.752
t	0.46		-1.28	
P	0.646		0.205	

In category number eight, Girls Social, the 25 males of the control group scored 11.4400 on the pre test and 12.2000 on the post test. The standard deviation on the pre test was 3.083 and 3.317 on the post test. The t value of -0.84 and the probability of 0.406 were not significant.

In category number eight, the 30 females of the control group scored 13.200 on the pre test and 12.4333 on the post test. The standard deviation on the pre test was 2.058 and 2.445 on the post test. The t value of 1.31 and the probability of 0.194 were not significant (Table XXXVIII).

TABLE XXXVIII

CATEGORY EIGHT: CONTROL/GIRLS SOCIAL

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	11.4400	12.2000	13.200	12.4333
S	3.083	3.317	2.058	2.445
t	-0.84		1.31	
P	0.406		0.194	

In category number nine, Boys Social, the 25 males of the control group scored 13.5200 on the pre test and 14.5600 on the post test. The standard deviation on the pre test was 4.155 and 4.032 on the post test. The t value of -9.90 and the probability of 0.374 were not significant.

In category number nine, Boys Social, the 30 females of the control group scored 12.8000 on the pre test and 12.0000 on the post test. The standard deviation on the pre test was 2.734 and 2.613 on the post test. The t value of 1.16 and the probability of 0.289 were not significant (Table XXXIX).

TABLE XXXIX

CATEGORY NINE: CONTROL/BOYS SOCIAL

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	13.5200	14.5600	12.8000	12.0000
S	4.155	4.032	2.734	2.613
t	-0.90		1.16	
P	0.374		0.289	

In category number ten, Peer Relations, the 25 males of the control group scored 15.7600 on the pre test and 16.2000 on the post test. The standard deviation on the pre test was 3.854 and 3.894 on the post test. The t value of -0.40 and the probability of 0.690 were not significant.

In category number ten, Peer Relations, the 30 females of the control group scored 17.9000 on the pre test and 16.9333 on the post test. The standard deviation on the pre test was 2.383 and 2.703 on the post test. The t value of 1.47 and the probability of 0.251 were not significant (Table XL).

TABLE XL

CATEGORY TEN: CONTROL/PEER RELATIONS

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\bar{X}$	15.7600	16.2000	17.9000	16.9333
S	3.854	3.894	2.383	2.703
t	-0.40		1.47	
P	0.690		0.251	

In category number eleven, Language Adequacy, the 25 males of the control group scored 16.2800 on the pre test and 15.9200 on the post test. The standard deviation on the pre test was 4.496 and 4.690 on the post test. The t value of 0.28 and the probability of 0.783 were not significant.

In category number eleven, Language Adequacy, the 30 females of the control group scored 15.7667 on the pre test and 15.2333 on the post test. The standard deviation on the pre test was 3.319 and 3.540 on the post test. The t value of 0.60 and the probability of 0.549 were not significant (Table XLI).

TABLE XLI

CATEGORY ELEVEN: CONTROL/LANGUAGE ADEQUACY

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	16.2800	15.9200	15.7667	15.2333
S	4.496	4.690	3.319	3.540
t	0.28		0.60	
P	0.783		0.549	

In category number twelve, Body Building, the 25 males of the control group scored 11.6800 on the pre test and 11.7200 on the post test. The standard deviation on the pre test was 3.473 and 3.588 on the post test. The t value of -0.04 and the probability of 0.968 were not significant.

In category number twelve, Body Building the 30 females of the control group scored 12.0667 on the pre test and 11.5667 on the post test. The standard deviation on the pre test was 3.638 and 3.919 on the post test. The t value of 0.51 and the probability of 0.610 were not significant (Table XLII).

TABLE XLII

CATEGORY TWELVE: CONTROL/BODY BUILDING

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\bar{X}$	11.6800	11.7200	12.0667	11.5667
S	3.473	3.588	3.638	3.919
t	-0.04		0.51	
P	0.968		0.610	

In category number thirteen, Self Image, the 25 males of the control group scored 19.2400 on the pre test and 18.8000 on the post test. The standard deviation on the pre test was 3.295 and 3.594 on the post test. The t value of 0.45 and the probability of 0.654 were not significant.

In category number thirteen, Self Image, the 30 females of the control group scored 19.4667 on the pre test and 19.000 on the post test. The standard deviation on the pre test was 2.837 and 2.729 on the post test. The t value of 0.65 and the probability of 0.519 were not significant (Table XLIII).

TABLE XLIII

CATEGORY THIRTEEN: CONTROL/SELF IMAGE

	Male		Female	
	Pre	Post	Pre	Post
N	25	25	30	30
$\overline{X}$	19.2400	18.8000	19.4667	19.000
S	3.295	3.594	2.837	2.729
t	0.45		0.65	
P	0.654		0.519	

Discussion of Results

Although there were no significant differences found statistically in self concepts of Project Apollo participants, variables within the group data, personal feedback, and instructor observations would indicate otherwise.

For the past 10 years, the "How I See Myself" scale has been utilized by Project Apollo administrators as an indicator of self concept growth of the participants. This study used the "How I See Myself" scale in order to research the claimed positive results of participation in Project Apollo upon self concepts.

This scale was administered to Project Apollo students recruited from socially and economically depressed areas of the county. If the language used in the scale was considered ambiguous for university personnel dependents, then it appears that it would be extremely ambiguous for Project Apollo participants. If the participant could not understand the question asked, then he/she may not effectively report on his/her views concerning body, peers, or emotional control.

Of the 13 variables included in the group data, two variables, Autonomy and Self Image, did show significant growth in self concept at the .05 level of confidence for Project Apollo participants, while significant growth did not occur for the control group. All variables within the group data for Project Apollo participants indicated some growth in self concept, although not at the .05 level of significance. This would appear to be the reasoning for the claims of Project Apollo administrators that participation in their program does have a positive effect on self concept.

Student and instructor feedback at the final debriefing concerning the value of individual participation in Project Apollo seemed positive to the researcher. Students appeared to feel more secure about themselves and their future potential to become successful in their chosen endeavors. The researcher also observed improved group process skills for the participants of Project Apollo after the six day course, although no noticeable change was apparent for the control group.

By the conclusion of their six day introduction to student life at Murray State University, the control group seemed to have formed cliques and were causing disciplinary problems for the instructors. The participants of the six day Project Apollo course seemed to have become a closely knit group of individuals capable of making decisions and completing tasks assigned to them by their instructors. After living and working together in a unique environment for six days, the group appeared more accepting and supportive of each other.

CHAPTER V

SUMMARY

The purpose of this study was to determine if participation in a psychologically and physically stressful experience had any effect upon self concept; specifically, this study tested the effects of the Project Apollo experience upon the self concepts of male and female participants. The hypotheses tested in this study related to these claimed effects. Does the Project Apollo experience alter the self concepts of participants? The specific hypotheses under investigation were: (1) There will be no significant difference at the .05 level of confidence between pre test and post test scores utilizing the "How I See Myself" scale, and (2) There will be no significant difference at the .05 level of confidence between pre test and post test for male and female participants.

Male (N=31) and female (N=27) participants enrolled in Project Apollo were measured for self concept at the beginning and at the conclusion of the Poseidon Program. The "How I See Myself" scale was used to determine self concepts. The statistical method used in the analysis of data was a paired t-test for comparison of the means.

Findings

The analysis of data obtained from test administrations at the beginning and at the conclusion of both Project Apollo and control

group participants revealed the following findings:

1. Following the Project Apollo experience, no significant differences were found in group data for participants between pre and post self concepts.

2. Following the control group experience for participants, no significant differences were found in group data.

3. Following the Project Apollo experience, no significant differences in group data were found for male or female participants.

4. Following the control group experience, no significant differences in group data were found for male or female participants.

5. Following the Project Apollo experience, significant differences at the .05 level of confidence were found for 2 of the 13 categories included in the group data. They were: number four, Autonomy, and number thirteen, Self Image.

6. Following the Project Apollo experience, significant difference at the .05 level of confidence was found for male participants in the individual category, number four, Autonomy.

Conclusions

The following conclusions were made on the basis of the previous findings and are specific to this study: (1) the Project Apollo experience does not alter the self concepts of participants, (2) two variables within the group data, Autonomy and Self Image, showed significant growth at the .05 level of confidence.

Recommendations for Further Study

Within the context of the Project Apollo program, additional

research might be conducted that would utilize a more appropriate instrument relative to the student population involved. Of particular value in the execution of such research might be the inclusion of observational techniques of data collection.

The use of participant feedback as an indicator of perceived self concept change might be differentially related. Because of the diverse backgrounds of the Project Apollo participants, variables other than sex alone could be related to self concept changes. The effects of participation could be correlated with age, race, cultural-urban/rural-background and geographical upbringing. The effects of participation could be related to the expectations of Project Apollo students. Self concept changes may differ between those students who participated because of parental or school pressure, and those who came out of personal desire. Studies could also be done for courses involving only females or males and tested for significant differences between the two groups. The effects of Athena and Poseidon courses could be tested for any significant result differences. Finally, a longitudinal study might be conducted to determine any long-lasting effects of participation in Project Apollo.

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APPENDIX

PROJECT APOLLO

HOW I SEE MYSELF

Name _____ Age _____ Sex _____

College Represented _____

Ethnic Group (Check One) _____ Spanish American _____ Black American
_____ Indian American _____ White American

These are questions about YOU and how you feel about yourself. Read the statement on the left side of the paper; then read the statement on the right side. You will see the numbers 1 2 3 4 5 down the center of the page. CIRCLE the number that best describes YOU; then WRITE that number in the blank to the left of the statement.

			↑ I feel like this ALL of the time.	I feel like this MOST of the time.	I feel BOTH ways SOMETIMES.	I feel like this MOST of the time	I feel like this ALL of the time. ↓	
____	1.	I rarely get mad	1	2	3	4	5	I get mad easily and explode
____	2.	I have trouble staying with one job until I finish	1	2	3	4	5	I stick with a job until I finish
____	3.	I am a good artist	1	2	3	4	5	I am a poor artist
____	4.	I don't like to work on committees	1	2	3	4	5	I enjoy working on committees
____	5.	I wish I were taller or shorter	1	2	3	4	5	I am just the right height
____	6.	I worry a lot	1	2	3	4	5	I seldom worry
____	7.	I wish I could do something with my hair	1	2	3	4	5	My hair is nice looking
____	8.	Teachers like me	1	2	3	4	5	Teachers dislike me
____	9.	I have a lot of energy	1	2	3	4	5	I have little energy
____	10.	I am not much good at athletics	1	2	3	4	5	I am good at athletics

			← I feel like this ALL of the time.		← I feel like this MOST of the time. I feel BOTH ways SOMETIMES		→ I feel like this MOST of the time. → I feel like this ALL of the time.	
____	11.	I am just the right weight	1	2	3	4	5	I wish I were heavier or lighter
____	12.	The girls don't admire me	1	2	3	4	5	The girls admire me
____	13.	I am good at speaking before a group	1	2	3	4	5	I am poor at speaking before a group
____	14.	My face is very pretty (good-looking)	1	2	3	4	5	I wish my face was prettier (better-looking)
____	15.	I am good at musical things	1	2	3	4	5	I am poor at musical things
____	16.	I get along very well with teachers	1	2	3	4	5	I don't get along well with teachers
____	17.	I dislike teachers	1	2	3	4	5	I like teachers
____	18.	I am seldom at ease and relaxed	1	2	3	4	5	I am usually at ease and relaxed
____	19.	I do not like to try new things	1	2	3	4	5	I like to try new things
____	20.	I have trouble controlling my feelings	1	2	3	4	5	I control my feelings very well
____	21.	I do very well in school	1	2	3	4	5	I do not do well in school
____	22.	I want the boys to admire me	1	2	3	4	5	I don't want the boys to admire me
____	23.	I don't like the way I look	1	2	3	4	5	I like the way I look
____	24.	I don't want the girls to admire me	1	2	3	4	5	I want the girls to admire me
____	25.	I am quite healthy	1	2	3	4	5	I am sick a lot
____	26.	I am a poor dancer	1	2	3	4	5	I am a good dancer

		↑ I feel like this ALL of the time.	↑ I feel like this MOST of the time.	I feel BOTH ways SOMETIMES	↓ I feel like this MOST of the time.	↓ I feel like this ALL of the time.	
____ 27.	Science is easy for me	1	2	3	4	5	Science is difficult for me
____ 28.	I enjoy doing individual projects	1	2	3	4	5	I don't like to do individual projects
____ 29.	It is easy for me to organize my time	1	2	3	4	5	I have trouble organizing my time
____ 30.	I am poor at making things with my hands	1	2	3	4	5	I am good at making things with my hands
____ 31.	I wish I could do something with my skin	1	2	3	4	5	My skin is nice looking
____ 32.	School is difficult for me	1	2	3	4	5	School is easy for me
____ 33.	Math is difficult for me	1	2	3	4	5	Math is easy for me
____ 34.	I am not as smart as my classmates	1	2	3	4	5	I am smarter than most of my classmates
____ 35.	The boys admire me	1	2	3	4	5	The boys don't admire me
____ 36.	My clothes are not as nice as I would like	1	2	3	4	5	My clothes are very nice
_____ 37.	I like school	1	2	3	4	5	I dislike school
____ 38.	I wish I were built like others	1	2	3	4	5	I like my build
____ 39.	I am a poor reader	1	2	3	4	5	I am a very good reader
____ 40.	I do not learn new things easily	1	2	3	4	5	I learn new things easily
____ 41.	I present a good appearance	1	2	3	4	5	I present a poor appearance
____ 42.	I do not have much confidence in myself	1	2	3	4	5	I am full of confidence in myself.

VITA

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