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The effects of an integrated outdoor adventure experience on the risk-taking attitudes of high school students

Wisnyai, Michael, Ph.D.
The Ohio State University, 1988
THE EFFECTS OF AN INTEGRATED OUTDOOR ADVENTURE EXPERIENCE ON THE RISK-TAKING ATTITUDES OF HIGH SCHOOL STUDENTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Michael Wisnyai, B.A., M.A., M.S.

* * * * *

The Ohio State University

1988

Dissertation Committee:
Seymour Kleinman
Charles Mand
James Sweeney

Approved by
[Signature]
Advisor
College of Education
To My Parents and Family
ACKNOWLEDGEMENTS

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VITA

October 29, 1950 .......... Born - Ashtabula, Ohio

1973 ...................... B.A., HPER,
Wittenberg University,
Springfield, Ohio

1974 ...................... M.A., Health Education,
The Ohio State University,
Columbus, Ohio

1983 ...................... M.S., Experiential Education,
Mankato State University,
Mankato, Minnesota

1975-1978 ................ Teacher
Yellow Springs Schools,
Yellow Springs, Ohio

1980-1985 ................ Adventure Education Coordinator
Huber Heights City Schools
Huber Heights, Ohio

1985-Present ............... Graduate Teaching Associate
The Ohio State University
Columbus, Ohio

FIELDS OF STUDY

Major Field: HPER/Outdoor Pursuits
Minor Field: Natural Resources
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CHAPTER I
INTRODUCTION

There are innumerable options in the continuum of educational learning strategies available for providing students with success and personal growth. One of these options is the use of the experiential learning process to enhance the total development of the individual through involvement in all domains of learning.

Risk-taking is a key component of the experiential learning process, particularly within the context of outdoor adventure education. It is an attitude that is related to a number of other affective development constructs, most notably with creativity (Torrance, 1972) and leadership (Richardson & Feldhusen, 1984). These and other components make up the expressive side of human development, and help form the type of emotional person an individual becomes. Through affective domain experiences, the individual learns to direct his/her emotions and attitudes toward the
development of a self-confident person who can interact with the environment and creatively cope with change. This development can be enhanced by the exploring of new patterns in one's life, many which involve taking on risks. These risks may sometimes be of a physical nature and produce significant uncertainty of outcome and high anxiety. These reactions are inherent parts of risking. Similarly, social and emotional risk-taking can also elicit uncertainty and strong anxiety reactions. In this regard, Dewey stated that "one must not begin with certainty, but that learning occurs as a result of uncertain and problematic concerns in the immediate environment" (Crosby, 1981). All risk-taking situations therefore, can be seen as proving grounds for real and meaningful individual learning and development.

Kogan & Wallach (1967), Bem (1971), and Williams (1979), among others, have indicated the notion of risk-taking as being motivated by a desire to protect a value cherished by an individual. The value being protected might take a variety of forms, ranging from the value that people might place on increasing their financial status, to the value of maintaining an interpersonal relationship with a loved one. Or it may be the desire and/or need simply to explore and create new experiences in one's life.

Others such as White (1959) and Ellis (1973) offer the theory that people take on challenges and explore their
environment because of personal need to express competence in utilizing learned skills. This may result in their gaining a certain degree of control in that environment. The founding father of the Outward Bound movement, philosopher and educator Kurt Hahn, called this interaction, "mastery". It has become the desired outcome of the Outward Bound Process. Walsh and Golins (1976) describe this process as:

a generalized series of conditions, events, and objects which interact to produce a desired effect.

The Outward Bound process functions as characteristic problem-solving tasks set in a prescribed physical and social environment which impel the participant to mastery of these tasks and which in turn serves to re-organize the meaning and direction of his life experience. (p. 2)

This process incorporates the three main theories of "transfer of learning" that are commonly used in Outdoor Adventure Education. Gass (1982) describes these theories as (a) specific transfer, in which the learner takes the habits and associations acquired during a previous experience and applies them to a new situation to assist him/her in developing a new skill; (b) non-specific transfer, whereby the learner generalizes the common underlying principles received from a previous experience and employs them in a new learning situation; and
(c) **metaphoric transfer**, in which a symbolic relationship is drawn between an actual learning experience and the application of the learnings to some abstract and/or future learning situation. Risk-taking, as a strong affective catalyst, has great potential for influencing people's lives. The transfer of learnings within risk-taking situations has strong personal relevance because of the commitment the individual must make in accepting the risks in order to protect the desired value or to strive for personal mastery. These learnings are extracted from the individual's interaction with the sometimes harsh, hostile natural environment and the real decision-making situations that are part of many outdoor adventure expedition and group settings.

Joplin's (1982) five stage model helps clarify the experiential learning process by defining five stages: (a) **Focus**, in which the task is presented to the learner for purposes of intense orientation and concentration; (b) **Action**, whereby the individual is placed in a stressful or risk-taking situation, unable to avoid the situation, and often requiring the use of new skills and knowledge; (c) **Support** and (d) **Feedback**, which exist throughout the experience and ensure that the individual receives the necessary encouragement and information to be able to move forward; and (e) **Debriefing**, during which learnings are
recognized, articulated, and evaluated. The learning is process-oriented and is seen as juxtaposed to traditional product-oriented methods of learning.

The traditional approach to educating this country's people has been primarily through the utilization of cognitive learnings and symbolic experiences. We are inundated with the task of receiving information, organizing it in some cognitive manner, and using it to form meaning. Unfortunately this approach oftentimes ignores a very important aspect of the learning process, the personal relevance of the learning experience to the individual. As stated by Combs (1982):

Learning always involves two things: exposure to new information or experience and the personal discovery of what it means. Any information will affect a person's behavior only in the degree to which he or she has discovered the personal meaning of that information. Historically, education has been preoccupied with providing information. (p. 495)

The experiential learning process is directed toward the internalizing of the effect of a personal event beyond the immediate future. One might consider this to be a way of enhancing the effect of the "peak experience", a theory put forth by Maslow (1976). In this theory the effect of certain dramatic events and meaningful experiences in an
individual's life are felt to be internalized after a single episode. These events are felt to be capable of significantly changing the very meaning and/or perspective of one's life.

Similarly, intense outdoor adventure experiences are often thought to be of the "peak experience" type and are also felt to be capable of producing dramatic affective changes in people. Since most formal outdoor experiences are planned activities, the opportunity to enhance the effects and benefits of these activities seems to be a logical learning goal. Therefore, if an individual student can be properly oriented to an activity through such things as familiarization and goal setting, and followed-up by meaningful processing and self-evaluation, a more powerful enhancement of the effect of the activity might be achieved.

This study utilized a specific outdoor adventure activity, a High Ropes Course, that was integrated into an experiential learning model called The Risk-Taking Enhancement Model (see Appendix A). It encompassed some components of the affective learning domains (Krathwohl, Bloom, and Masia, 1964) and the cognitive learning domains (Bloom, 1956) to present a holistic approach to the fostering of risk-taking attitudes. The study attempted to determine whether positive risk-taking attitudes can be increased through outdoor adventure activities that
integrate the experiential learning process. This attempt compared the effect of the experiential learning process on risk-taking attitudes to a High Ropes Course experience that did not utilize the process. Typically, the approach used by public schools in providing outdoor adventure education for their students is to program for isolated, one-time experiences. It is questionable whether learning occurs on such a basis. The primary goal of this study, therefore, was to identify the type of outdoor adventure experience that influenced the desired affective learnings and increased positive risk-taking attitudes. A second goal was to determine whether it is appropriate and feasible to offer such outdoor adventure experiences in the public school curriculum.
Need and Rationale:

Positive risk-taking experiences have the potential to influence other areas of an individual's life. Their relationship to creativity and leadership may encourage the development of these characteristics in students. If this is so, then positive risk-taking activities should be given higher priority in all educational settings.

Many educators have cited the need for schools to educate the whole person. In this regard Combs (1982) states:

Advocates of affective education maintain that concern for student attitudes, feelings, and emotions are important facets of the learning process and must be included in educational planning and practice. An educational system that ignores or rejects affective aspects of behavior runs the risk of making itself ineffective. Learning without affect is unlikely to influence behavior. (p. 495)

Unfortunately, this aspect of human development and learning has been sadly neglected in our schools. Attempts to program for affective education have, for the most part, been minimal. Although many educational leaders acknowledge the need to integrate the emotional side of an individual's learning, "affective education continues to be viewed as
part of the 'soft side' of the curriculum" (Beane, 1985, p. 27). Oftentimes this attitude translates directly into a position assumed by many educational leaders that cognitive/thinking education means academic programming without an affective educational component" (p. 27).

Purpose of the Study:

The purpose of this study was to examine the effects of pre-experience orientation and post-experience group processing, as part of a specific outdoor adventure experience, the High Ropes Course, on the risk-taking attitudes of high school students. This arrangement of the orientation, the actual High Ropes Course experience, and the group processing, was utilized in order to compare it with a High Ropes Course experience not preceded by orientation nor followed by processing. Distinct differences between groups were looked for in order to identify curricular needs that relate to the implementation of such a program. The attribute variables, sex and achievement were also identified to determine their relationship to risk-taking attitudes.

Based on personal involvement in the field and various concerns cited within the literature, the author developed the following questions:
1. Will a pre-experience orientation and a post-experience group processing session, in combination with the specific High Ropes Course experience, produce changes in the measured risk-taking attitudes of high school students?
   a. Will differences between experimental and control groups be statistically significant (p<.05)?

2. Will a pre-experience orientation and a post-experience group processing session, in combination with the High Ropes Course experience, produce changes in the measured risk-taking attitudes of high school male and female students?
   a. Will differences between experimental and control groups be statistically significant (p<.05)?

3. Is the relationship between risk-taking attitudes and academic achievement significant?
   a. Will correlational scores of the three groups be statistically significant (p<.05)?

4. Will a High Ropes Course experience produce changes in the measured risk-taking attitudes of high school students?
   a. Will differences between experimental and control groups be statistically significant (p<.05)?
5. Will a High Ropes Course experience produce changes in the measured risk-taking attitudes of high school male and female students?
   a. Will differences between experimental and control groups be statistically significant (p<.05)?

6. Is the relationship between risk-taking attitudes and academic achievement significant when reported by gender?
   a. Will correlational scores of the three groups be statistically significant (p<.05)?
Definition of Terms:
The following definitions were used in the course of this study:

**Affective**: Pertaining to or causing emotions and feelings.

**Affective learning**: The acquiring of knowledge about and impressions of one's emotional self through personally relevant involvement in an experience.

**Cognitive**: Having to do with the process of intellectually knowing.

**Cognitive learning**: The acquiring of intellectual skills and factual knowledge.

**Experiential learning process**: The on-going sequence of real personal experiences normally involving a pre-experience orientation and focus, followed by post-experience reflection upon the experience and subsequent transfer of learnings.

**Familiarization**: The process of becoming acquainted with or more knowledgeable of a particular fact or situation through interaction with pertinent materials and other people.

**Group processing**: A leader-guided interactive activity in which individual reflection and group discussion is encouraged for purposes of analysis, synthesis, and evaluation of experiences, the purpose being to ultimately result in personal self-growth for individual group members.
**High Ropes Course:** A series of high angle obstacles, dangling climbing structures and contraptions, and other unusual apparatus requiring a certain degree of strength and endurance that pose risk-taking and problem-solving situations to the individual.

**Outdoor adventure:** Singular and/or multi-dimensional outdoor activities that pose perceived personal risk and challenge to an individual for purposes of recreation and/or personal growth.

**Outdoor adventure education:** Education which fosters the personal growth and development of an individual through the purposeful use of outdoor adventure activities.

**Outward Bound Process:** A sequence of programmatic events designed to place the learner in unique social and physical situations through which the individual has the opportunity to develop self-confidence and feelings of personal efficacy.

**Risk-taking:** The voluntary exposure of one's self to possible physical, social and emotional peril and to situations of uncertain outcome.

**Transfer of learning:** The direct or indirect effect that a particular experience has on an individual's future learning experiences.
Limitations:

This study was designed to test the effect of a specific outdoor adventure experience, the High Ropes Course, as part of an integrated experiential learning model on the risk-taking attitudes of high school students. Comparison of this treatment with a second treatment that did not utilize the experiential learning model was made. The study was conducted under the following limitations:

1. Subjects were not randomized as they were drawn from intact high school biology classes. Statistical equivalency, however, was derived from the use of a covariate in the design of the study and in the analysis of data.
2. The students self-selected to be in the class that took part in the study. They were not all from the same grade level nor of the same chronological age.
3. These students differed in terms of previous experiences with outdoor education.
4. Complete control over interaction between treatment groups during the course of the study was impossible. A second post test was given to the subjects to determine the actual effect of this possible interaction.
5. The experimenter, having formal training and extensive experience with the activities and treatment strategies used
in the study, served as the leader of all activities involved in the study. This makes replicability of the study questionable.

6. There was a significant loss of subjects after required oral and written solicitation for participation was given (see Appendix C). Overall loss of students from the subject pool totaled about 40% and was approximately equal in all three groups.
CHAPTER II
REVIEW OF LITERATURE

The Construct of Risk-Taking:

Risk-taking can be interpreted in many ways and may mean different things to people at any one time. Some might regard it as including common outdoor adventure activities such as sky diving, rockclimbing, whitewater kayaking, and the like. Others may think of activities such as gambling and stock market speculation. Still others may view it as intimate interpersonal involvement with another person. Whatever the case, there seems to be a wide range of impressions and feelings produced within people when they are placed in positions of personal risk or choose to participate in risky activities. In these situations the potential loss of something of value is part of the risk being taken. The construct of risk-taking, therefore, is seen as having an element of uncertainty and potential loss. This loss is seen by some as the motivation needed by individuals to take on the risks that are necessary in order to preserve the value.
The desire to protect this value thus places the individual in a decision-making position in which consequences of the decision may be uncertain, but are willingly accepted (Blomkvist, 1987).

This notion of the loss of something of value was originally put forth by Kogan and Wallach (1967) wherein they described risk taking behavior occurring in:

situations where there is a desirable goal and lack of certainty that it can be attained. The situation may take the form of requiring a choice between more or less desirable goals, with the former having a lower probability of attainment than the latter. Another possible characteristic of such situations is the threat of negative consequences for failure so that the individual at the post-decisional stage might find himself worse off than he was before he made the decision. (p. 115)

Similarly, Bem (1971) states that "taking a risk may be viewed as a selection of one alternative or course of action from among many in which the consequences of that choice could leave the individual in a worse position than if he had selected otherwise or not selected at all" (p. 5).

Williams (1979) characterizes the risk-taker as "an individual who has the courage to expose oneself to
criticisms, take a guess, function under conditions devoid of structure, and defend one's own ideas" (p.750).

Although these authors have attempted to define risk-taking in some manner, it remains a multi-dimensional construct that seems to defy precise measurement and definition (Slovic, 1964). Nonetheless, risk-taking can be characterized as a behavior that involves some perception of danger or potential loss and an uncertainty of the consequences of an action taken by an individual.

**Risk-Taking and Other Affective Constructs:**

Because of it's multi-dimensional nature, risk-taking is felt to be correlated with a number of other dimensions within the affective realm of human development. Creativity and leadership potential are felt to be partially derived from an individual's willingness to take risks.

"Creative change often requires experiential risk and willing acceptance of new patterns, pathways, and unproven possibilities" (Sanders and Sanders, 1984, p.31). This is often a difficult task to accomplish because people are taught to live safely and to avoid risk. They grow up being rewarded for the "right" answer and are made to feel that by failing or being "wrong" they have let others down (Adams, 1979). When they try to produce a creative idea, individuals risk failure and often may experience the anxiety of
separateness and of being alone (Crutchfield, 1973). Fear of making a mistake, to fail, or to take a risk is thus considered to be the most common emotional block to creativity.

Some authors have suggested that we can actually teach creative behavior. Torrence (1972), Williams (1979), and Arieti (1976), to name a few, feel that to do this we must also begin to teach the value of risk-taking. The most obvious way to accomplish this is to allow students to experience both success and failure in real-life situations. This is the basis of the experiential approach to education as espoused by John Dewey. It is as valid today as it has been in the past. Dewey stated that one must not begin with "certainty" in that learning occurs as a result of uncertain and problematic concerns in the immediate environment (Crosby, 1981). It is advantageous, in light of this concept, to place students in an environment where success is not guaranteed, and where failure is a real possibility. Furthermore, it is believed that an accumulation of "adventurous" experiences can help one develop an active approach to living and an increased willingness to engage in other new and uncertain situations (Project Adventure, 1976). Therefore, this adventurous situation evokes a way of dealing with the unknown, of facing risk-taking situations that lead to increased achievement motivation and a
willingness to take chances (Rohnke, 1977). It would seem that the adventure situation, having an innate uncertainty and riskiness about it, would be a highly conducive arena for creative thought and action. For example, Williams (1979), feels that the association between risk-taking behavior and creativity is so strong that he has utilized it as one of the key sub-scales in his assessment of creativity measure, *A Creativity Assessment Packet*.

Another construct that is linked to risk-taking behavior is leadership. A distinct correlation between leadership and other affective constructs that are related to risk-taking can be seen. Some authors state the belief that leadership ability is directly related to one's willingness to take risks. Richardson and Feldhusen (1984) describe the effective leader as having a number of distinct personality characteristics, one of which is being a risk-taker. They state that "there will be times when wrong decisions in group settings will be made. When this occurs, the leader must be willing to admit a mistake and to start over. Sometimes a leader must make decisions which are unpopular with the group. It is on these occasions that the leader must be a risk-taker" (p. 22). The uncertainty of the situation, however, does not deter the effective leader.
In this regard, Sisk and Shallcross (1986), in predicting traits of future managerial personnel, have identified a "tolerance of uncertainty" as one that interacts with such traits as "creativity" and "resistance to stress", among others, in potential leaders (p.4).

Outdoor Adventure Education and corporate leadership training programs recently have developed an interesting relationship. More specifically, Outward Bound, Inc., a major experiential education institution in this country, as well as around the world, has begun directing its teachings and philosophy toward the corporate world.

Numerous Outward Bound programs have evolved from the experiential learning curriculum which founder Kurt Hahn devised during World War II. Hahn had been entrusted by the British navy to develop seamanship and survival experiences for its sailors with the intention of shoring up their individual and group survival skills and attitudes to be used in case of catastrophic sea accidents. Hahn's theory stressed the development of inner resources through physical as well as intellectual challenge. The sailors realized their own capabilities and limitations when they were faced with immediate, physical tasks that required cooperative decision-making. Outward Bound has adapted these training
strategies and implements them within wilderness settings to carry out reality training and self-development experiences (Isenhart, 1983).

Corporate training programmers see this type of experience increasingly as a method of enacting many of their most important goals for their management staff. To this end, Isenhart (1983) has identified three on-going corporate goals that may be met by an Outward Bound experience: to encourage potential leadership, develop talent critical to success at different levels of authority, and renew individuals for continued contribution (pp. 124-125). The learning model used by Outward Bound "acknowledges that we assimilate and use information which is available in our daily lives, not just that which is presented to us in a formal classroom. The assumption is that people climbing peaks and running rivers develop unique insights about leadership and risk-taking. While these insights may be cultivated by instructors, it is the participants who discover them and make the transferral to daily living" (Isenhart, 1983, p. 124). This transfer of learnings is a valuable process for all levels of management.

Although specialists cannot agree on all of the qualities critical to success at these levels, two Outward Bound themes seem to be related to effective managerial
leadership: "creation of innovative approaches and willingness to take risks" (Isenhart, 1983, p. 127). This association between risk-taking and managerial success is suggested by research conducted by McClelland (1976). His findings suggest that the executive who determines how to accomplish necessary goals in some creative way has the best chance of moving up the corporate ladder. He feels that many executives have arrived at that level because they are "physically hard" and that risk-taking experiences provided by Outward Bound likely will be appealing and challenging to those who have proved themselves successful risk-takers in the corporate area.

Risk-Taking Models and Theories:

The study of risk-taking originated in the field of economics, therefore much interest was generated in the early studies toward understanding risk-taking as it related to economic decision-making. At the same time came a push to investigate the psychological aspects of risk-taking with increasing interest in measuring personality traits. These trait studies tended to be efforts to look at isolated characteristics of the risk-taker such as "the tendency to gamble" (Swiniford, 1941), "decision-making traits" (Edwards, 1954), and "decision-making under uncertainty" (Feather, 1966). These early studies initially produced
interesting results, but later lost a bit of their validity as a result of Slovic's (1964) determination that risk-taking is multi-dimensional in nature and is, therefore, difficult to measure as an isolated characteristic. Measurement instruments such as the Kogan and Wallach "Choice Dilemma Questionaire" (1964) and various personality inventory risk-taking sub-scales developed by Jackson (1976) and Williams (1980) have since produced validity and reliability information that make them useful instruments for measuring the construct of risk-taking.

The major models and theories which currently form the basis for understanding risk-taking are centered primarily around the concepts of "gambling and decision-making" (Edwards, 1955); "achievement motivation" (Atkinson, 1958); and "sensation-seeking" (Zuckerman, 1979a). These three theories will now be reviewed.

**Risk-Taking and Gambling Behavior:**

The "gambling and decision-making" theory largely resulted from the early work of Edwards on gambling behavior as it related to objective and subjective probabilities and values. Out of this research, Edwards (1955) developed four models which were thought to explain human gambling decisions. The first model, expected value (EV) proposed that individuals make gambling decisions primarily based on
a comparison of the probability of winning to the expected monetary payoff. If the "expected value" was felt to be high enough, the individual would decide to make the bet. This model was later refuted by Coombs and Komorita (1958) when their research determined that individuals often do not choose bets with higher expected values. Their results suggested a more complex explanation for gambling decision-making.

The second of Edward's models, subjectively expected value (SEV), substituted subjective probabilities for objective probabilities, thereby accounting for differences in how individuals evaluated their chances of winning. The model, however, did not provide a definitive explanation for gambling decision-making due to the fact that it was not able to predict betting choices in a variety of situations (Pruitt, 1962).

Edwards expanded on the first two models in the third of his models, expected utility (EU). In this model an attempt was made to explain decision-making by suggesting that individuals make gambling decisions based on an evaluation of the subjective value of the possible monetary gain. In this case individuals are thought to have widely differing subjective opinions as to what is a large monetary bet and what they are willing to risk. Although this model
generally received greater support than the first two, independent findings by Pruitt (1962) suggested that many measurement ambiguities inherent in the model made it difficult to draw meaningful conclusions from it.

The fourth model (1962), subjectively expected utility (SEU), was developed by Edwards as an attempt to refine and integrate the three earlier models. This model is thought to encompass a mathematical theory of choice behavior, whereby individual gambling decisions are made based upon the evaluation of the subjective probability of winning compared to the subjective value of the bet. This model, although more useful than the others, is felt to be difficult to utilize in predicting gambling decision-making due to the wide variance of preferences made by individual bettors. An example of this variance can be shown by the comparison of a 1 in 2 chance of winning $1.00 versus a 1 in 2 chance of winning $0.50. The variance discrepancy is larger in the $1.00 payoff, which results in a wider range of choices to choose from, thereby possibly resulting in a more subjective gambling decision (Kogan and Wallach, 1967, p. 118).

In considering the four models put forth by Edwards, it seems logical to suggest that the wide range of explanations for gambling decision-making and gambling attitudes may be related to the multi-dimensional nature of the construct of
risk-taking itself, as suggested by Slovic (1964). Perhaps, the uncertainty of the outcome in a gambling situation (i.e., the potential monetary loss or gain), may be equally as uncertain as the process the individual goes through in actually deciding to make the bet.

Pruitt (1962) attempted to remedy the problems that remained unanswered in Edward's models by proposing a model that included individual variance preferences as a factor in determining gambling decision-making. In this model, "it is assumed that people have separate attitudes toward patterns and level of risk and that these interact to determine gambling decisions" (p. 192). Included in this interactive model are the concepts of "ideal level of risk"—the level most preferred by an individual for a given pattern—and "maximum acceptable level of risk"—the highest level voluntarily accepted for a given pattern. This model, while acknowledging the importance of risk-taking concepts, had not been put through much empirical testing in genuine gambling situations at the time of it's promotion, and therefore was not readily received by the research community. Kogan and Wallach (1967) felt that this model, as well as Edward's foundational models, did not adequately explain human gambling behavior in light of it's
multi-dimensional nature. They felt that the wide variety of motivational, situational, and social factors that enter into the decision-making process were ignored (pp. 121-122).

**Risk-Taking and Achievement Motivation:**

At the time that Edwards and Pruitt were developing their models, significant research was being conducted in the area of achievement motivation as a factor in risk-taking. Atkinson (1958) was attempting to correlate the motivational bases of risk-taking behavior. He summarized his model in this way:

the major implications of the theory are (a) performance level should be greatest when there is greatest uncertainty about an outcome (ie., when subjective probability of success is .50, whether the motive to achieve or the motive to avoid failure is stronger within an individual); but (b) persons in whom the achievement motive is stronger should prefer intermediate risk while persons in whom the motive to avoid failure is stronger should avoid intermediate risk and prefer instead very easy and safe undertakings or very difficult speculative undertakings (pp. 338-339).
The model took two components, subjective probability and incentive, and showed them in an inverse relationship to each other. In this way, Atkinson was attempting to show that if a task is very easy (i.e., having a high subjective probability of success), its incentive value should be very low. That is to say that a person should derive very little pleasure from solving a very easy problem. From the opposite point of view, a person should derive much pleasure from solving a very difficult problem.

Atkinson also included two important motivation components, a motive to achieve success, and a motive to avoid failure. These motives interact with the aforementioned incentive and probability components. This interaction is summarized in the following equation:

RESULTANT MOTIVATION =
\[(\text{Motive to succeed}) \times (\text{Subjective probability}) \times (\text{Incentive})\] - \[(\text{Motive to avoid failure}) \times (\text{Subjective probability}) \times (\text{Incentive})\]

This formula can be further summarized by thinking of the motive to achieve success as being an individual's "approach tendencies" and motive to avoid failure as being "avoidance tendencies" (Kogan and Wallach, 1967, p. 175). Higher approach tendencies, thus, can be considered to be necessary in order to produce positive motivation. This same
model of motivation can have a significant effect on an individual's decision to take risks. Although Atkinson's work in this area is still considered, by many, to be a major work in the understanding of risk-taking behavior, other researchers still feel that a wide range of other factors are also related to an individual's decision to take risks.

**Risk-Taking and Sensation-Seeking:**

The next significant attempt to explain risk-taking behavior was put forth by Zuckerman (1979a) in his theory of "sensation-seeking". The assumption in this theory is that individual personality traits have particular kinds of emotional arousal responses associated with them, the arousal being a mixture of broad physiological arousal patterns and more specific cognitive labeling of these patterns (Zuckerman, 1979b). These responses are seen as psycho-biological reactions which can be detected in changes in physiological function as well as in affective attitudes expressed by the individual.

Optimal arousal, as put forth by White (1959) and Ellis (1973), maintains that an individual is in a continuous process of seeking and avoiding interactions with the environment, striving to sustain an optimal level of arousal. An optimal level of arousal is felt to be necessary
in order for the individual to be adequately satisfied with and to enjoy these interactions. This seeking is thought to be motivated by a tolerance for uncertainty and novelty which produces incongruency in the individual, which in turn, enhances arousal. It is felt that this tolerance for arousal varies between people and that some people have higher levels of tolerance for it. These people are often characterized as high risk-takers whose level of tolerance is quite high. Conversely, people with low tolerance levels are thought to be inhibited by anxiety reactions to the incongruency of uncertain and novel situations. These individuals do not handle high levels of arousal and usually withdraw from these situations. Their reaction to the incongruency also results from a cognitive appraisal of the situation and is combined with the individual's relative level of intolerance. This results in the individual either withdrawing or seeking more arousal. In the case of sensation-seekers, this seeking is often satisfied by high levels of risk-taking with uncertainty of consequence. Zuckerman's theory can be summarized by proposing that an appraisal of a real or imagined situation as risky will elicit an anxiety state that varies in direct proportion to the appraised risk. However, the situation may also contain elements of novelty and the promise of new experiences that elicit a sensation-seeking state (Zuckerman, 1979b, p. 167).
In light of the previously presented background information on models and theories of risk-taking, the most accepted singular theory seemed to be that put forth by Atkinson (1958) in his "achievement motivation" study. However, a number of other researchers, most noteworthy being Kogan and Wallach (1967), have felt that there is a strong need for risk-taking to be investigated in the context of other variables.

Risk-Taking and the Individual:

Many personality characteristics and attributes may affect the decision-making process and ultimately affect the degree of risk-taking carried out by an individual. The research in this area has been varied and has produced results that suggest a relationship between personality characteristics and risk-taking attitudes. Unfortunately, the results have been generally inconclusive or have not been generalizable to the population as a whole (Kogan and Wallach, 1967, p. 167). The major reason for this may be the possibility that some of the research that has been done to determine these effects and relationships may have been measuring differing constructs of risk-taking. Other reasons may be that many studies have been conducted in unreal laboratory situations or have used theoretical
decision-making scenarios to recreate real risk-taking situations. This has been the case many times in research conducted in the areas of gender, age, and socio-economic status.

The greatest concern expressed by researchers when looking at studies conducted on age and sex differences in risk-taking attitudes is the need to look at these factors over the lifetime of individuals (Kogan and Wallach, 1967, p.168). There seem to be gaps in this regard, with much study devoted to children, college students, and retired individuals nearing life's end. Little work, however, has been done with adolescent populations and with people in the gerontological category who are not at the ends of their lives.

In looking at risk-taking in children, two early studies are important. One by Kass (1964), found no risk-taking differences in children between age 6 and 10 on a "slot machine" task in which choice of bet size and selection of odds was given. Differences, however, were found between sexes. Boys more frequently chose to play the higher odds with 1 in 3 and 1 in 8 probabilities of winning three cents and eight cents, respectively. The girls however, chose to play the equal odds where a one cent payoff occurred on each play. The findings revealed that
six-to-ten year old boys did show a greater willingness to gamble than girls. This can be interpreted as having some significant meaning in that it was a real risk-taking situation and not a theoretical one.

Slovic (1966), on the other hand, looked at a larger range of ages (6-10 and 11-16) and found no sex differences with the younger children, but significant differences in the older children. These results found with the 6-10 year old children contradict Kass's findings, but Slovic used a questionable risk-taking task in attempting to elicit the risk-taking effect. The subjects were given a choice in pulling a series of switches, nine that were considered "safe" and one that was a "disaster switch". Each subject was free to pull as many switches as he/she wanted and received a piece of candy for each "safe switch" that was pulled. The subjects were told that if the "disaster switch" was pulled he or she would have to forfeit all candy won up to that point. This experiment was conducted at a county fair where the subjects were observed by a number of spectators as they performed the tasks. In assessing the results of the study, Kogan and Wallach (1967, p.167), feel that the differences in the older children may have resulted from differences between sexes when performing in public.
The notion here is that when performing in front of people, boys may be more likely to be daring, adventurous and bold, whereas this may not be as likely with the girls.

Studies to investigate the construct of risk-taking in extremely young children have been met with some disagreement. Piaget and Inhelder (1951) claim that understanding the concept of chance first develops between seven and ten years of age and is only thoroughly understood by age eleven. This claim suggests that attempts to assess risk-taking attitudes in children of pre-school and elementary age may produce questionable results. Yost, Siegel, and Andrews (1962), however, dispute this claim by suggesting that the problem with young children understanding the concept of chance is the result of their lower levels of verbalization. The authors, therefore, devised a non-verbal procedure for assessing understanding of the concept. The children used in their studies successfully understood the concept and the authors were able to make inferences toward risk-taking and decision-making attitudes in these children. Davies (1965) supported these findings with results that fully half of her three year old subjects had a grasp of the concept of probability based on non-verbal measures. These findings by
Davis and those by Yost et al, therefore seem to lend encouragement to the notion that assessment of risk-taking attitudes and behaviors in very young children is possible.

Research has also found age trends with respect to comprehension of chance. Carlson (1969) traced the development of children's conception of probability in second through fifth grade children and found a trend showing that children's understanding of this variable increased with age. This is in line with Piaget's (1951) claim of the developmental nature of the understanding of chance.

Still other researchers have found trends that suggest that as children get older their degree of risk-taking lessens. Slakter, Koehler, Hapton, and Grennel (1971) when investigating chance risk-taking behavior, found higher risk-taking in grades 5-7, than in grades 8-10. In a similar study, Robbins (1969) confirmed the findings of Slakter et al (1971), this time while assessing college students.

These findings suggest that: (a) risk-taking decreases with age; (b) increased levels of education decreases risk-taking; and (c) as people become older and more socialized, there is an increased conformity to rules and reduced amount of decision-making based on individual risk-taking.
In looking at adult risk-taking attitudes, one idea that has been suggested is that women are more conservative risk-takers than men. This notion was disclaimed through the involved research by Kogan and Wallach (1959; 1961; and 1964). In the 1959 study, using a hypothetical choice-dilemma task to assess risk-taking attitudes, the authors found no significant differences between men and women of college age nor in elderly men and women. However, differences were found in particular content areas. To the extent that the risks reflected distinctive masculine or feminine values, each sex appeared willing to tolerate higher risk levels in pursuit of values that were considered more sex appropriate. In disputing the notion of "feminine conservatism", the authors observed that "women may take greater risks than men regarding fields in which such boldness particularly furthers a woman's fulfillment and expression" (pp. 563-564).

In their 1964 study, Kogan and Wallach utilized decision-making tasks that involved monetary payoffs instead of the hypothetical choice-dilemma task. Again, results did not produce evidence strong enough to claim any sort of support for the "feminine conservatism" notion. The authors, however did find an interesting intra-gender change as age increases. Their results showed a steady decrease with age in risk-taking for women over the latter portion of the age
span. No such results were obtained for men in the same age bracket. The men seemed to reach an abrupt plateau beyond which further age increase had no effect on risk-taking, whereas the women's risk-taking attitudes seemed to tail off more gradually and more continuously.

In investigating the effect of socio-economic and social status on risk-taking attitudes, some interesting results can be shown. Kogan and Wallach (1967) cite a distinct trend toward conservative risk-taking among college level subjects. Although this trend is distinct, the bulk of the empirical work on risk-taking has been conducted on college students. This suggests that generalizing about a larger population may be misleading because of the limited range of ages studied.

Comparison studies with other populations have been sparse, although a few have produced results that provide interesting notions of socio-economic and educational differences in risk-taking attitudes. Mosteller and Nogee (1951) looked at the decision-making behavior of college students and enlisted military men using a poker-dice task to elicit gambling decision-making. Varying payoff values were used to distinguish low and high risk-taking attitudes. Results showed that the college students consistently showed a more conservative decision-making behavior than their military counterparts. These findings suggest an educational
difference between the groups, with the less-educated military subjects being inclined more toward "extravagant" risk-taking. One might dispute this suggestion, however, by noting that military personnel may already be greater risk-takers based on their choice of profession. One might also suggest, however, that enlisted military personnel merely represent a more educationally disadvantaged individual whose risk-taking attitudes are actually quite similar to others his/her age. He/she has simply been forced into the military by lack of educational and career alternatives. Thus, the educational differences must be seriously considered to produce differences. Mosteller and Nogees' (1951) findings were supported by results produced by Scodel, Ratoosh, and Minas (1959) in a similar study.

Back and Gergen (1963) investigated gambling and the combined variable, educational/occupational status. Their work produced results that conflict with those of Mosteller and Nogee (1951) and Scodel et al (1959). A clear relation was found between higher status and participation in gambling activities, while at the same time lower status individuals showed less likelihood to participate in gambling activities. The explanation for this difference is that higher status individuals have more financial resources and correspondingly greater variance potential in regard to
their level of betting. This would allow them to make more bold bets than the lower status individual whose financial resources would force a more conservative bet.

Another socio-economic variable that has shown differences in risk-taking attitudes is race. Lefcourt (1965) established that Negroes were more cautious risk-takers than whites. The author states that "Negroes believe that achievement in skill-demanding tasks is less instrumental to success than in other situations where determinants of success are largely luck or fate" (p. 769). This suggests that when blacks perceive that luck and fate may influence a particular decision in their lives, they are more likely to make a cautious decision. This further suggests that care must be taken in interpreting results of studies that may be confounded by differences in the individual motivational levels of the particular subjects. This may be true with some minorities, such as blacks, who are part of a society in which achievement is not often rewarded with higher status and hence individual motivation levels may be lower as a result.

Silberstein (1969) investigated the effect of varying rewards on the risk-taking behavior of three ethnic groups. Using candy, beads, and verbal praise as rewards in attempting to elicit risk-taking among the subjects, the author found no significant differences between sexes and
treatment. There were minor differences, however, between the groups in terms of the type of rewards given. Mexican Americans took fewer chances with the candy reward, while the Negro and Anglo-Americans took fewer chances with beads and verbal praise as rewards. These results suggest a slight cultural difference may have existed among the groups in terms of the value they placed on the incentives being offered for achievement. However, the multi-dimensional nature of risk-taking may have been affecting the study's ability to discriminate significantly strong differences.

In an interesting study by Walls and Cox (1971), children's expectancies in chance and skill outcomes were investigated. Results revealed that disadvantaged girls and advantaged boys had a general external locus of control attitude toward their lives. This suggested that they perceived the direction of their lives was primarily influenced by other people. Interestingly, the disadvantaged boys displayed a strong internal locus of control attitude. This seems unusual in that one would expect the advantaged male to display a strong internal orientation and independent risk-taking attitude. Conversely, one would expect the disadvantaged male to be more externally oriented due to the fact that societal realities and racial prejudice often control the general direction in which his life is allowed to go.
In summarizing the variety of individual factors that relate to risk-taking behavior, the multi-dimensional nature of the construct seems to make it's measurement and effect even more difficult to grasp. The next section looks at additional factors relating to risk-taking behavior and attitudes.

**Risky Shift Theory:**

"To consider decision-making under conditions of risk at the level of the individual is to consider only part of the psychology of making risky decisions" (Kogan and Wallach, 1967, p.224). Many times an individual makes decisions as a member of a group or in situations in which the impact of a decision will affect others. Therefore, often the individual will consult other members of the group for their input in regard to the decision. This input has been shown to have significant effects on the individual, with the individual's actions many times reflecting more the attitudes of others than of personal attitudes. This effect is true for the individual in risk-taking situations just as it is in many other decision-making situations.

Numerous studies have demonstrated that groups of people, after discussing risk-related decision-making, shift toward decisions that are riskier than those they previously may have advocated as individuals. This phenomena was first
identified in the work by Stoner (1961) and has since been referred to as "risky shift". It has implications in a number of situations for individuals as well as groups.

A number of explanations for the effect of "risky shift" have been put forth through empirical study. Bateson (1966) hypothesized that risky shift is the result of a process he called "familiarization". In this process the individual becomes acquainted with the topic or risk situation through varied means, internalizes it, and reduces the feelings of uncertainty and cautiousness toward it. This then allows the individual to make riskier decisions.

This notion has been investigated in various settings and with many variables. Bateson utilized group discussion of the risk problem as an independent variable and compared it's effect on eliciting riskier decisions with those produced by private study of the same problem. Both treatments produced increased riskiness. This increase was felt to have been caused by the familiarization process suggested by Bateson (p. 119).

Kogan and Wallach (1965) added to the familiarization notion with their research showing that group discussion of risk problems did not require consensus of opinion within the group in order to produce risky shift effects upon individual members. The effect still took place even when some member took a position or an attitude contrary to the
majority of the group. Flanders and Thistlewaite (1967) propose that this may be due to the fact that "comprehension is the sole process contributing to the risky shift effect, and that group discussion and resulting familiarization improve comprehension" (p.92). Related to this notion are the findings of Miller and Dion (1970) who showed that "group discussion produced significant risky shifts whether preceding or following familiarization" (p.338).

The Experiential Learning Process:

The ultimate goal of any learning experience is the transfer of learnings from that experience to future learning situations. The experiential learning process within outdoor adventure settings is especially powerful in this transfer process. This is due to the nature of the experiences and the type of learning environment in which outdoor adventure activities are conducted.

Experiential education is not a new educational innovation. It's roots can be traced back to Rousseau's *Emile* and more recently to the Progressive Movement of the 1930's in this country (Kraft, 1982). The most well-known member of this movement was John Dewey, philosopher and voice of the experiential learning approach to education. His words are now influencing the direction of many outdoor
adventure programs in this country. Many educators have espoused the need for experiential learning to be the underlying foundational philosophy of all meaningful learning. Total acceptance of this philosophy, however, has been hindered by a lack of understanding within the educational community.

The greatest obstacle to acceptance of experiential learning may be the difficulty that some educators have in defining it. Initially, many short-sighted educators defined it simply as "anything that occurs outside the classroom" (Keeton, 1976). Other definitions have ranged from the simple generic phrase, "learning by doing", to the notion put forth by the Northwest Regional Education Laboratory, that experienced-based programs are characterized by seven kinds of learning: "learning how to learn, learning about life, learning about careers, learning about themselves, learning to be responsible, learning about others, and learning by doing" (Kraft, 1982, p. 8).

Perhaps the definition by Chickering (1976), however, might be considered to have the proper breadth and emphasis on change that serves the process most effectively. It reads:

Experiential learning is learning which occurs when changes in judgements, feelings, knowledge or skills result from living through an event or events.
Experiential learning may also result from an encounter group or an exam, discussion or demonstration, work or play, travel, or simply sitting on a stump. (p. 63)

This definition serves the process well because it assumes that learning occurs in all environments and does not negate the effect of well designed classroom experiences on the education of students.

More important than the definition of experiential learning is the process itself, and the great importance of utilizing this approach to impact most directly on personal learning. Many educators have espoused the experiential learning process as being the most relevant form of education. Aristotle, often thought of as the father of science and a believer in knowing through our senses and experience (Kraft, 1982, p. 10), stated that "men of experience succeed even better than those who have theory without experience" (p. 689). Kraft supports this notion and feels that the shortcomings of the traditional public education process lie in the "lack of experience on the part of young people, who spend thirteen to twenty or more years in a formal school setting mastering theories which are often unrelated to the real world for which that education is supposedly preparing them" (p. 10).
Locke (1964) adds to this by saying, "experience must teach me what reason cannot. In experience all knowledge is founded and from that it ultimately derives itself" (p. 89).

Even the great traditional educational philosopher, John Stuart Mill, recognized the importance of the experiential, non-formal aspects of his own learning, and wrote about the need to learn foreign languages by living in that country, and by learning many other subjects by reading and studying on one's own, rather than through direct formal instruction (Kraft, 1982, p. 11).

Among the vast amounts of literature espousing the benefits and necessity of experiential learning opportunities, perhaps Dewey's *Experience and Education* (1938) comes closest to a philosophy upon which the true nature of the process can be understood. Although Dewey is often directly tied to the idea of learning through direct experience, he did not necessarily equate experience with education. In fact, he spoke of the danger of "mis-education". He stated that "some experiences are mis-educative, that they have the effect of arresting or distorting the growth of further experiences and produce lack of sensitivity and responsiveness. Everything depends upon the quality of the experience which is had" (pp. 25-26). This mis-education concern is strongly held within all experiential learning settings. Dewey warned that unless
the principles of continuity and interaction are carefully considered, an experience can easily become misguided and may result in a negative experience.

Dewey emphasized that experiential learning does not take place only within the individual learner, but occurs through active involvement in objective conditions. This was considered to be a type of continuity that is needed within the experiential learning continuum (Kraft, 1982). These objective conditions are seen as those resources that the learner has available to interact with and with which to create new relationships and meaning. The conditions are constantly changing and thus represent the next experiential learning situation along the continuum upon which the learner can enact newly gained learnings.

Dewey also identified a second criterion of experience, interaction. Experiences always involve the interdependence of the learner and the environment in the learning process. The environment must be a real situation that provides adequate continuity for the transfer of previous learnings to that situation. In this regard, Dewey (1938) warned that educators:

above all should know how to utilize the surroundings, physical and social, that exist so as to extract from
them all they have to contribute to building up experiences that are worthwhile. The teacher should become intimately acquainted with the conditions of the local community, physical, historical, economic, occupational, etc., in order to utilize them as educational resources. (p. 40)

Dewey concluded *Experience and Education* by presenting an important decision that our educational leaders must make in looking toward future educational endeavors. He felt that we must either move forward to ever greater utilization of the scientific method of learning in which there is an on-going expanding of experience, or revert back to the unrealistic learning standards of the pre-science era. To even the untrained lay person, common sense tells us to move forward.

As part of this forward movement, experiential education has taken many new and interesting directions. One of the more popular directions has been the use of wilderness and wilderness-like environments as settings for the enactment of experiential learning principles. This is the method utilized by the Outward Bound schools in their efforts to foster personal self-development and related affective learnings. The Outward Bound Process has been adopted by many outdoor adventure education programs across
the country and around the world. Its impact has become so pervasive within the field that in some ways, might be considered to be what outdoor adventure education really is.

As an experiential learning process, Outward Bound's key objectives are identified as personal development, interpersonal effectiveness, environmental awareness, personal learning, and formation of a personal value system and philosophy. These objectives are addressed through selected methods that involve skill training, physical and emotional stress, problem solving, service projects, reflection, and evaluation (Bacon, 1983). These objectives and the methods to achieve them are all components of the Outward Bound Process.

The process is defined as "characteristic problem-solving tasks set in a prescribed physical and social environment which impel the participant to mastery of these tasks and which in turn serves to reorganize the meaning and direction of his life experience" (Walsh and Golins, 1975). Although the definition implies a sort of "contrived" experience, the experiences are contrived only in the sense that they are structured and defined in educational terms. In reality, the experiences take place in natural environments, oftentimes in harsh weather. The ultimate goal of the process is to move participants toward personal "mastery" (Walsh and Golins, 1975). In this process
the individual gains feelings of personal competence which can be used to create a measure of effectance within the environment that he/she interacts in (White, 1959). This mastery is achieved through the assorted individual and group skills that are learned and tested during the course of the experience. Transfer of the learnings gained during the experience is enhanced through debriefing and personal reflection.

Transfer of learnings in the Outward Bound Process and in most experiential learning situations is dependent upon whether the situation is isomorphically related to the real life situation. This is particularly true in the Outward Bound Process in which most transfer is accomplished through the use of metaphors. Isomorphic means that the situations have the same structure. When all the major elements of an experience are represented by corresponding elements in another experience, and when the structure of the two experiences is very similar, then the two experiences are said to be metaphors for each other (Bacon, 1983). Other types of transfer that result from these experiential experiences are specific transfer, in which new skills are transferred to other tasks depending upon their specific applicability to those tasks; and non-specific transfer, in
which common underlying principles learned from a previous experience are applied in new learning situations (Gass, 1982).

This transfer process does not always happen as an immediate result of a particular experience or set of learning situations. The experiences must be debriefed through individual and group processing and personal reflection. A purposeful attempt to enhance the experience of the learner and facilitate transfer must occur. This important event is an integral part of the experiential learning process and provides the uniqueness that separates this approach to learning from most traditional approaches.

In distinguishing the major differences between experiential learning and traditional classroom learning, Coleman (1974) points out that the two processes involve different learning sequences. Traditional classroom methods most often begin with information giving through some symbolic medium, followed by information assimilation and inference, and culminate with the application of symbolic cognitive information into action. Experiential learning, on the other hand, begins with action, is followed by true understanding of the real elements of the experience, and culminates in the application of the learnings in new learning situations.
This whole process can be summarized by an examination of the component parts of Joplin's (1982) Five Stage Experiential Learning Model. The model was developed to help teachers understand the experiential learning strategies useful in planning their courses.

The first stage in the cycle is the Focus. This stage is characterized by an isolation of the learner's attention and concentration upon the learning task. It helps define the subject of investigation and prepares the learner for the challenging action stage that is to follow. This preparation can take many forms, but the main objective is for the learner to feel adequately informed about the upcoming event. This stage often culminates with the learner identifying expectations and setting goals for the experience.

The second stage is the obvious experiential stage of the cycle. It is referred to as the Action stage. Although experiential learning occurs during all stages of the model, the action stage is the period in which real risks are taken and real consequence of actions occur. This is particularly true in outdoor adventure settings where the involvement is usually quite intense and at times, very risky. This is the period in which much of the learner's energy and
concentration is directed toward sorting and analyzing information and then using this information in dealing with real tasks and decisions.

The Action stage is an emotionally intense stage for the learner. Self-doubt may result from initial feelings of unpreparedness and low self-confidence. This is the time when two other important stages of the cycle must be reinforced. These are the Support and Feedback stages. Adequate support provides the security and caring that pushes the learner to challenge himself, while meaningful feedback will ensure the learner that he has the necessary information and ability to take on the challenge.

The last stage, Debriefing, is the crux of the experiential learning process. During this stage learnings are recognized, articulated, and evaluated. This is accomplished through a number of methods, some of which include: public discussion and sharing of the experience, personal and private reflection, journal writing, and quiet thought. Hopefully, through this formal group processing, experiential learning will become more meaningful. The goal is for the learner to verify his/her learnings against the attitudes and learnings of others and to re-focus for the beginning of the next experiential learning cycle.
Goal Setting and Achievement:

A number of important elements can be identified in the formation of individual achievement motivation. These elements are described by Mitchell (1982) as: (a) an assumption that motivation is an individual phenomenon, that it is something that incorporates the uniqueness of each individual; (b) that it is under the individual's control, that it is intentional; (c) that it involves arousal, direction, and persistence; and (d) that it is reflected in behavior. Although we may recognize that we are motivated, and we may move with direction, the question is, how do we activate this achievement motivation? We do this through individual goal setting (Napier and Gershenfeld, 1985, pp. 186-187).

In early research by Morrow (1938), an internal tension system was theorized as being the arousal that is correlated with individual striving to attain goals. This tension system is the continual motivation that drives the individual until a goal is actually achieved or until there is psychological closure and feelings of attainment. In the experiments that helped formulate the theory, subjects were given standard "peg in holes" tasks that have been used in many psychological testing settings. On some of the tasks subjects were allowed to continue the task uninterrupted, while on others he or she was interrupted prior to
completion. A significant finding was that most subjects remembered the incompleted tasks more frequently than those that they had completed. This validated the internal tension theory that there is a tension system connected to a set goal which continues until the goal is achieved. These findings have been tested and verified with a variety of subjects (Napier and Gershenfeld, 1985, p. 187). Results suggest, therefore, that an identifiable correlation exists between the goals set by individuals and their internal motivation to attain them.

Goal setting also conveys information about performance capabilities when people compare their present accomplishments to their goals. High levels of motivation are maintained when goals are specific, difficult but attainable, and near-at-hand (Schunk and Gaa, 1981).

According to Locke (1968), a specific goal results in higher task performance than either no goal or a more general goal. Bandura (1977) suggests that this higher performance is a result of the greater specification of the amount of effort needed for success and through the satisfaction anticipated prior to the goal being attained.

Difficulty of the task is also a determining factor in the attainment potential of a goal. Persons tend to exert greater effort to achieve difficult tasks than easier ones. The higher the individual goal, the greater the performance
(Locke, 1968). Problems arise, however, when goals are set at unrealistically high levels. In this case individual effort is likely to be low, as people generally are not motivated to attempt impossible tasks. Conversely, maximum effort should be expended when people perceive goals as challenging, but attainable (Bandura, 1977).

A third factor that effects goal attainment is the nearness of possible attainment to the time at which the goal was set. Goals that are close at hand and that can be achieved rather quickly result in greater motivation than goals that are more distant. More distant goals are often not attained because persons often delay action on these goals. Efforts therefore should be directed toward choosing a series of short term goals that can be achieved in a short period of time. This will then result in the gradual and cumulative attainment of a larger long-term goal (Schunk and Gaa, 1981).

In summarizing methods of goal-setting, Wlodkowski (1978) puts forth the following questions as necessary for determining the appropriateness of a particular goal:

(a) Is there enough time to reach the goal, and can the individual achieve it with the skills and knowledge at hand? (b) What is the individual's self-confidence for reaching the goal? (c) How will the individual be able to evaluate his/her progress or achievement? (d) Is the
goal something that the individual wants to do? (e) Is there a plan whereby the individual remains focused on the goal so as to avoid forgetting and procrastination? (f) Is the process of reaching the goal somehow stimulating, competence-building, reinforcing, or need gratifying? and (g) Can the effort to strive for achievement of the goal be sealed by some informal or formal gesture or pledge? (pp.55-56)

When outdoor adventure experiences are properly structured around the experiential learning model these questions can be answered with a confident yes.

Summary:

Risk-taking has been defined in a number of ways, with the consensus being that it involves the desire to protect something of value, and in taking risks individuals expose themselves to uncertainty of consequences and/or potential loss of the value (Kogan and Wallach, 1967).

The difficulty in defining this construct has probably been due to the fact that risk-taking is a multi-dimensional construct that resists not only clear definition, but also precise measurement (Slovic, 1964). Just as with many other personality traits, risk-taking is a characteristic that interacts with a vast number of other characteristics and situations to elicit its effect in a multitude of ways.
Early attempts to measure risk-taking were relatively unsuccessful until Slovic's multi-dimensional work was completed. Researchers then began to construct measurement scales that sought to converge on the construct of risk-taking by integrating hypothetical risk-taking with the real dimensions of gambling behavior and sensation-seeking. Jackson et al (1972) worked on the convergent validity of a number of these risk-taking measures and were able to develop a risk-taking subscale that correlated these scales at the .50 to .80 level.

Risk-taking has also been shown to be related to other affective domain constructs. Its relationship to creativity (Torrence, 1972) and leadership potential (Richardson and Feldhusen, 1984) makes it a valuable ingredient in this society's on-going search for creative problem solvers, inventors, and leaders.

The enhancement of affective learning through real experiences provides the vehicle whereby individuals can become involved in real risking. The experiential learning process can serve as the structure within which this risking takes place. In this process the individual is encouraged to focus on an experience and thereby more precisely identify personal goals for the experience. One's personal motivation to achieve then becomes part of the total effort to enhance the effect of the experience. This then provides the means
through which the individual can make a realistic evaluation of self-achievement (Locke, 1968). The experiential learning process strives to re-focus real achievements and learnings toward future learning situations and new decision-making situations. Dramatic experiences in the lives of students can translate to significant changes in attitude and behavior. The ultimate learning goal in the experiential learning process, therefore, is the enhancement of these experiences. To help students explore their strengths and identify their weaknesses is to encourage positive change and decision-making in their lives.
CHAPTER III
PROCEDURES

Research Design:

The design for this study was a quasi-experimental, non-equivalent control group design (Cambell and Stanley, 1963). The design involved two experimental treatment levels, with one group (O/HR/GP), receiving Pre-Experience Orientation (O) and Post-Experience Group Processing (GP) as part of an integrated High Ropes Course Experience (HR). A second treatment group received only the High Ropes Course Experience (H/R). A third group served as a Control and received none of the experiences that the other two groups received. All three groups were given the co-variate pre-test, Change, a subscale of the Personality Research Form (PRF), and a repeated post-test, Risk-Taking, a subscale of the Jackson Personality Inventory (JPI). The
repeated post-test was given one day and eight days after treatment to examine the direct effects of treatment, internalization of the effects of treatment, and to help control intersession history threats. The control group received the repeated post-tests at the same time intervals as the treatment groups in order to maintain uniformity of experimental conditions.

The groups did not have pre-experimental sampling equivalence because the subjects were drawn from intact classrooms. Use of the co-variate pre-test, however, allowed the three groups to be statistically equated, and thus removed the threat of confounding variables. This design controlled for testing threats through use of the co-variate measure. The design also controlled for the main internal validity threats of history, maturation, and instrumentation. Regression threats were controlled through the co-variate equating of the groups.

Subject Selection:

The subjects consisted of students from three General Biology classes at Rutherford B. Hayes High School, Delaware City Schools, Delaware, Ohio. Each class of approximately
15 students were randomly assigned to treatment levels. Individual subjects, however, were not randomly assigned because they were part of intact classes. The students in these classes were ninth and tenth grade level. Most students take general biology during their years in high school, therefore the members of these three classes were considered to be fairly representative of the average student at the school. They were not part of any advanced placement biology or special education track.

These classes were suggested for use in this study because they met the following criteria: (1) the teacher of these classes was willing to participate in the study; (2) the experimenter had approval for access to these classes; and (3) the school district was interested in the results of this study for purposes of determining the feasibility of utilizing such outdoor adventure experiences in its curriculum in the future.

**Outcome Measures:**

The dependent measurements in this study were repeated post-test comparisons of treatment group scores on the
Risk-Taking subscale of the Jackson Personality Inventory (JPI). Comparison of scores between treatment groups when the attribute variable, sex, was considered, was also made. Correlational data regarding the relationship between risktaking and academic achievement was also generated.

Conditions of Testing:

The study was conducted primarily at the Adventure Education Center, Camp Mary Orton, Worthington, Ohio. The pre-test measures were taken in the classroom setting for the two treatment groups as were all testing measures (pre and post) on the control group. First post-test measures for the two treatment groups were given at the Adventure Education Center at the end of the treatment sessions. Second post-test measures on all three groups were given in the classroom setting eight days after the first post-test.

All testing was conducted by either the experimenter or the classroom teacher, depending on whether treatment and testing times conflicted or not.
Treatments:

The primary treatment used in this study was an integrated outdoor adventure experience (O/HR/GP), specifically presented as a Pre-Experience Orientation (O), followed by a High Ropes Course Experience (HR), and concluded with Post-Experience Group Processing (GP). The comparison treatment was the use of a High Ropes Course Experience (HR) which was not preceded by the orientation, nor followed by the group processing.

The primary treatment group (O/HR/GP) was guided through a three phase outdoor adventure experience which incorporated the "five stage model of the experiential learning process" described by Joplin (1982). These stages are listed as: (1) Focus, (2) Action, interacting with (3) Feedback and (4) Support, and (5) Debriefing (see Appendix A).

The first phase in the primary treatment, the Pre-Experience Orientation (Focus) included information receiving, in which risk-taking theories were presented to subjects through direct instruction, followed by a related video-tape presentation, "Chancing It" (CBS, 1982). Subjects were then involved in a familiarization process, during which group discussion and sharing of previous personal risk-taking experiences took place. The first phase
then culminated with individual goal-setting, in which subjects were asked to process the information they had received and discussed so far, and then write down three risk-taking goals for the upcoming high ropes course experience. Each subject determined one physical, one emotional, and one social risk-taking goal for him/herself.

The second phase, the High Ropes Course Experience (Action) involved the subjects in active participation on the course, itself. The course can be described as a series of high angle obstacles, dangling structures, and unusual apparatus that pose risk-taking and problem-solving situations to the participant. Incorporated within this phase were the (Feedback) and (Support) components of Joplin's model in which the experimenter provided input and participants interacted with one another.

The third and last phase of the primary treatment, the Post-Experience Group Processing, included an interactive group session led by the experimenter in which processing questions were directed toward an accurate reflection and evaluation of the experience for each subject. Specific questioning centered around moving the discussion through the five levels of Bloom's cognitive learning taxonomy (Bloom, 1956). This phase culminated with a self-evaluation of goal attainment by each subject.
The comparison treatment group, the **High Ropes Course Experience** (HR), participated on the same course as the primary treatment group (O/HR/GP), but did not receive any of the pre-experience orientation or post-experience processing. Both groups received the first post-test immediately following the treatment.

**Data Analysis:**

In published data, the co-vari ate pre-test, **Change**, correlated at .58 with the dependent measure, **Risk-Taking** when these tests were used with high school students (Jackson, 1976). Because of this correlation, a statistical gain of power roughly equivalent to the doubling of sample size was assumed (Barrick, 1985). Post test measurement analysis showed the covariate and the dependent measure (Post Test II) correlated at .32 in this study. This allowed statistical equating of groups through adjustment of post-test means by way of linear regression.

Comparisons made in the study utilized analysis of covariance to determine differences between groups. Specific comparisons were made between the treatment groups, the treatment groups and the control group, and between all groups when the attribute variable of sex was considered. Post hoc analysis of the multi-comparison test, Fisher's
Least Significant Difference (LSD), was conducted to determine which specific groups differed significantly. Correlational data was also obtained to determine the relationship between risk-taking and achievement. All comparisons were made at the .05 level of significance.
CHAPTER IV
FINDINGS

Findings of the study are presented in this chapter in four parts: part one contains descriptive data concerning the sample; part two details overall results of the analysis of covariance; part three reports the results of the analysis of covariance in determining gender differences between groups; and part four explores the correlational relationship between risk-taking and achievement.

The primary research questions addressed in the study were:

1. Did the pre-experience orientation and post-experience group processing, in combination with the High Ropes Course experience produce changes in the measured risk-taking attitudes of high school students?
2. Did the pre-experience orientation and post-experience group processing, in combination with the High Ropes Course experience produce changes in the measured risk-taking attitudes of high school male and female students?

3. Did a singular High Ropes Course experience produce changes in the measured risk-taking attitudes of high school students?

4. Did a singular High Ropes Course experience produce changes in the measured risk-taking attitudes of high school male and female students?

5. Was there an identified relationship found between student risk-taking attitudes and individual scholastic achievement scores?

6. Was there an identified relationship found between male and female risk-taking attitudes and individual scholastic achievement scores?
Descriptive Data

Sample Profile:

The subjects used in this study were students from grades nine and ten from General Biology classes in the Delaware City Schools. They were members of three intact classes, and therefore were not randomly assigned to treatment groups. The three classes however, were randomly assigned to the two treatment groups and the one control group. The three groups were identified as the High Ropes (H/R) group, the Orientation/High Ropes/Group Process (O/HR/GP) group, and the Control group. The original group sizes of twenty-five, twenty-three, and twenty-six subjects was reduced to the final group sizes of fifteen, twelve, and seventeen, respectively. This reduction in numbers occurred after guidelines of the Human Subject Review Process were implemented and proper solicitation of subjects was completed (see Appendix C).

In looking at the frequency distributions (Table 1.) there were twenty-three females (52.3%) in the study out of a total of forty-four subjects. Males numbered twenty-one out of the total (47.7%). Males outnumbered the females in both the H/R group and in the O/HR/GP group, but females made up a strong majority of the Control group (70.6%).
Table 1

Frequency Distribution of Students by Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>H/R</td>
<td>6</td>
<td>40.0</td>
<td>9</td>
</tr>
<tr>
<td>O/HR/GP</td>
<td>5</td>
<td>41.7</td>
<td>7</td>
</tr>
<tr>
<td>Control</td>
<td>12</td>
<td>70.6</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>52.3</td>
<td>21</td>
</tr>
</tbody>
</table>

Descriptive Data on the Dependent Measure:

Unadjusted group means reported for the first dependent measure (Post Test I) on the Risk-Taking Subscale show that the O/HR/GP group scored the highest at 11.75, while the Control group scored the lowest of the three groups with 8.00 (Table 2).

Unadjusted group means for the second dependent measurement (Post Test II) show the same pattern of high to low scores (Table 3). The O/HR/GP group again scored the highest (14.00), the H/R group produced the intermediate score (10.60), and the Control group scored the lowest (8.18). The H/R group, however, produced a lower Post Test II score than in Post Test I.
Table 2

Table of Unadjusted Group Means for the Risk-Taking Subscale (Post Test I)

<table>
<thead>
<tr>
<th></th>
<th>H/R</th>
<th>O/HR/GP</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>15</td>
<td>12</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>mean</td>
<td>11.20</td>
<td>11.75</td>
<td>8.00</td>
<td>10.11</td>
</tr>
<tr>
<td>SD</td>
<td>3.67</td>
<td>5.01</td>
<td>4.54</td>
<td>4.62</td>
</tr>
</tbody>
</table>

Table 3

Table of Unadjusted Group Means for the Risk-Taking Subscale (Post Test II)

<table>
<thead>
<tr>
<th></th>
<th>H/R</th>
<th>O/HR/GP</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>15</td>
<td>12</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>mean</td>
<td>10.60</td>
<td>14.00</td>
<td>8.18</td>
<td>10.60</td>
</tr>
<tr>
<td>SD</td>
<td>1.88</td>
<td>4.35</td>
<td>5.29</td>
<td>4.69</td>
</tr>
</tbody>
</table>
**Descriptive Data on the Covariate Pre-Test:**

The covariate utilized in the study was the pre-test measurement, "Change", a subscale of the *Personality Research Form* (Jackson, 1987). It was correlated with the dependent measure in the study at $r = .32$ (Post Test II). This level is considered to be within the normal range of correlations in the social sciences and education fields (Warmbrod, 1987).

In looking at the data, it can be seen that the three groups did not differ greatly on their pre-test scores, therefore indicating that the groups were statistically similar prior to the Pre-test measures. Table 4 shows that the mean scores on the Pre-Test for each group did not show much difference between the groups nor in comparison with the total group mean score (8.59). These pre-test measurements were then adjusted through linear regression procedures for the slight differences that were present. Adjusted group means were calculated and were used later in the analysis of covariance procedures to determine whether significant differences between the three groups were found. The unadjusted and adjusted group means for Post Test I and Post Test II are shown in Tables 5 and 6 and reflect the pre-test equality of the three groups by analysis of the minimal changes in the unadjusted means.
Table 4  
Table of Group Means for the Covariate Pre-Test  

<table>
<thead>
<tr>
<th>Group</th>
<th>H/R</th>
<th>O/HR/GP</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>15</td>
<td>12</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>mean</td>
<td>9.00</td>
<td>8.75</td>
<td>8.12</td>
<td>8.59</td>
</tr>
<tr>
<td>SD</td>
<td>2.36</td>
<td>3.22</td>
<td>3.35</td>
<td>2.97</td>
</tr>
</tbody>
</table>

Table 5  
Table of Unadjusted and Adjusted Group Means for the Risk-Taking Subscale (Post Test I)  

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>H/R</td>
<td>11.20</td>
<td>11.09</td>
</tr>
<tr>
<td>O/HR/GP</td>
<td>11.75</td>
<td>11.71</td>
</tr>
<tr>
<td>Control</td>
<td>8.00</td>
<td>8.14</td>
</tr>
</tbody>
</table>

Table 6  
Table of Unadjusted and Adjusted Group Means for the Risk-Taking Subscale (Post Test II)  

<table>
<thead>
<tr>
<th>Group</th>
<th>Unadjusted</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td>H/R</td>
<td>10.60</td>
<td>10.43</td>
</tr>
<tr>
<td>O/HR/GP</td>
<td>14.00</td>
<td>13.94</td>
</tr>
<tr>
<td>Control</td>
<td>8.18</td>
<td>8.40</td>
</tr>
</tbody>
</table>
Analysis of Covariance

To investigate possible differences between the three groups in the study, analysis of covariance calculations were made using the covariate pre-test (Change) and the dependent measure (Risk-Taking). The calculations were carried out on Post Test I and Post Test II adjusted mean scores. Results (Table 7) did not show a significant difference between groups on Post Test I (F= 2.86, Significance of F= .069). Post Test II mean scores (Table 8), however, did produce significant differences between the three groups (F= 6.81, Significance of F= .003). All calculations to determine significance were done at an alpha level of .05, set a priori.

A multiple comparison test, Fisher's Least Significant Difference (LSD), was then calculated to determine which specific groups differed significantly on the Post Test II measure. Results (Table 9) show that the O/HR/GP group differed significantly from the Control group (LSD= 3.03, means difference= 5.54) and from the H/R group (LSD= 3.11, means difference= 3.51). No significant differences were found between the H/R group and the Control group (LSD= 2.85, means difference= 2.03).
Table 7
Analysis of Covariance for the Risk-Taking Subscale  
(Post Test I)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>30.35</td>
<td>1</td>
<td>30.35</td>
<td>1.59</td>
<td>.215</td>
</tr>
<tr>
<td>Treatment</td>
<td>109.38</td>
<td>2</td>
<td>54.69</td>
<td>2.86</td>
<td>.069</td>
</tr>
<tr>
<td>Residual</td>
<td>764.30</td>
<td>40</td>
<td>19.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>904.03</td>
<td>43</td>
<td>21.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8
Analysis of Covariance for the Risk-Taking Subscale  
(Post Test II)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>73.76</td>
<td>1</td>
<td>73.76</td>
<td>4.67</td>
<td>.037</td>
</tr>
<tr>
<td>Treatment</td>
<td>215.33</td>
<td>2</td>
<td>107.67</td>
<td>6.81</td>
<td>.003</td>
</tr>
<tr>
<td>Residual</td>
<td>632.31</td>
<td>40</td>
<td>15.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>921.40</td>
<td>43</td>
<td>21.43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9

Results of Fisher's Least Significant Difference Test
(Post Test II)

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>H/R</th>
<th>O/HR/GP</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.43</td>
<td>H/R</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.94</td>
<td>O/HR/GP</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>8.40</td>
<td>Control</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(*) Denotes pairs of groups significantly different at the 0.05 level

Note. Determination of significantly different pairs requires the following means differences:

- O/HR/GP vs. H/R requires means difference ≥ LSD 3.11
- O/HR/GP vs. Control requires means difference ≥ LSD 3.03
- H/R vs. Control requires means difference ≥ LSD 2.85
Gender Differences

Mean Scores:

When looking at gender differences found in the study, results show male and female subjects differed in a few distinct ways. Within each of the three groups, unadjusted mean scores were higher for the males than for the females on Post Test I (Table 10). This was particularly true for the O/HR/GP group which showed a difference between the males and females of 6.09 (14.29—8.20). Although the other two groups did not show such large differences, the males did score higher than the females. This pattern held true for the O/HR/GP and H/R groups on Post Test II scores (Table 11), with males again scoring higher. However, the males in the Control group, interestingly produced lower unadjusted mean scores than the females.

As with unadjusted mean scores from the overall Post Test results, linear regression procedures were also used to adjust the mean scores on both the Post Test I and the Post Test II measures for gender distinctions. These unadjusted and adjusted mean scores are shown in Tables 10 and 11. Again, adjusted mean scores did not produce large changes from the unadjusted mean scores, thus showing the relative similarity of the groups prior to the covariate pre-test.
Table 10

Unadjusted and Adjusted Mean Scores on the Risk-Taking Subscale Reported by Gender and Group (Post Test I)

<table>
<thead>
<tr>
<th>Group</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th></th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H/R</td>
<td>9.83</td>
<td>9.70</td>
<td>12.11</td>
<td>12.05</td>
<td>11.20</td>
<td>11.09</td>
<td></td>
</tr>
<tr>
<td>O/HR/GP</td>
<td>8.20</td>
<td>8.29</td>
<td>14.29</td>
<td>14.23</td>
<td>11.75</td>
<td>11.71</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>7.25</td>
<td>7.30</td>
<td>9.80</td>
<td>9.91</td>
<td>8.00</td>
<td>8.14</td>
<td></td>
</tr>
</tbody>
</table>

Table 11

Unadjusted and Adjusted Mean Scores on the Risk-Taking Subscale Reported by Gender and Group (Post Test II)

<table>
<thead>
<tr>
<th>Group</th>
<th>Female</th>
<th></th>
<th>Male</th>
<th></th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H/R</td>
<td>9.67</td>
<td>9.53</td>
<td>11.22</td>
<td>11.07</td>
<td>10.60</td>
<td>10.43</td>
<td></td>
</tr>
<tr>
<td>O/HR/GP</td>
<td>10.40</td>
<td>10.48</td>
<td>16.57</td>
<td>16.45</td>
<td>14.00</td>
<td>13.94</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>8.58</td>
<td>8.63</td>
<td>7.20</td>
<td>7.47</td>
<td>8.18</td>
<td>8.40</td>
<td></td>
</tr>
</tbody>
</table>
Analysis of Covariance for Male Subjects:

Analysis of covariance procedures were again utilized to investigate possible differences between groups when reported by gender. Calculations were carried out on Post Test I and Post Test II adjusted mean scores for both male and female subjects.

Results from Table 12 did not show a significant difference between the three groups on Post Test I for males (F= 2.12, Significance of F= .151). Post Test II mean scores for male subjects (Table 13), however, did produce significant differences (F= 19.24, Significance of F= .000).

Fisher's Least Significant Difference (LSD) was again calculated to determine which groups differed significantly on the Post Test II measure. Results (Table 14) show that the O/HR/GP group differed significantly from the Control group (LSD= 2.94, means difference= 8.98) and from the H/R group (LSD= 2.53, means difference= 5.38). A significant difference was also found between the H/R group and the Control group (LSD= 2.80, means difference= 3.60).
Table 12

Analysis of Covariance for Male Subjects on the Risk-Taking Subscale (Post Test I)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>.33</td>
<td>1</td>
<td>.33</td>
<td>.03</td>
<td>.87</td>
</tr>
<tr>
<td>Treatment</td>
<td>46.50</td>
<td>2</td>
<td>23.25</td>
<td>2.12</td>
<td>.151</td>
</tr>
<tr>
<td>Residual</td>
<td>186.79</td>
<td>17</td>
<td>10.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>233.62</td>
<td>20</td>
<td>11.68</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13

Analysis of Covariance for Male Subjects on the Risk-Taking Subscale (Post Test II)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>1.75</td>
<td>1</td>
<td>1.75</td>
<td>.31</td>
<td>.586</td>
</tr>
<tr>
<td>Treatment</td>
<td>217.97</td>
<td>2</td>
<td>108.98</td>
<td>19.24</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>96.32</td>
<td>17</td>
<td>5.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>316.04</td>
<td>20</td>
<td>15.08</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 14

Results of Fisher's Least Significant Difference Test on Male Subjects
(Post Test II)

<table>
<thead>
<tr>
<th>Mean</th>
<th>Group</th>
<th>H/R</th>
<th>O/HR/GP</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.07</td>
<td>H/R</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>16.45</td>
<td>O/HR/GP</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>7.47</td>
<td>Control</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

(*) Denotes pairs of groups significantly different at the 0.05 level

**Note.** Determination of significantly different pairs requires the following means differences:

- O/HR/GP vs. H/R requires means difference ≥ LSD 2.53
- O/HR/GP vs. Control requires means difference ≥ LSD 2.94
- H/R vs. Control requires means difference ≥ LSD 2.80
Analysis of Covariance for Female Subjects:

Results for analysis of covariance calculations did not produce significant differences between the three groups on either Post Test I or Post Test II for female subjects.

Post Test I results (Table 15) show that there were no significant differences between the three groups (F= .64, Significance of F= .538. Similarly, Post Test II results (Table 16) also show that there were no significant differences between the three groups (F= .32, Significance of F= .727). Since significant differences were not found on either of the post test measures, Fisher's Least Significant Difference test was not needed.
### Table 15

Analysis of Covariance for Female Subjects on the Risk-Taking Subscale (Post Test I)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>114.92</td>
<td>1</td>
<td>114.92</td>
<td>6.37</td>
<td>.021</td>
</tr>
<tr>
<td>Treatment</td>
<td>23.13</td>
<td>2</td>
<td>11.56</td>
<td>.64</td>
<td>.538</td>
</tr>
<tr>
<td>Residuals</td>
<td>342.97</td>
<td>19</td>
<td>18.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>481.02</td>
<td>22</td>
<td>21.86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 16

Analysis of Covariance for Female Subjects on the Risk-Taking Subscale (Post Test II)

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>ss</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig. of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>109.52</td>
<td>1</td>
<td>109.52</td>
<td>5.59</td>
<td>.029</td>
</tr>
<tr>
<td>Treatment</td>
<td>12.68</td>
<td>2</td>
<td>6.34</td>
<td>.32</td>
<td>.727</td>
</tr>
<tr>
<td>Residuals</td>
<td>371.93</td>
<td>19</td>
<td>19.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>494.13</td>
<td>22</td>
<td>22.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Correlation of Risk-Taking With Achievement

Another area of investigation in the study was the relationship between Risk-Taking, as measured by Post Test I and II scores, and Academic Achievement, as measured by the Iowa Test of Basic Skills.

Pearson Correlation Coefficients were calculated using Post Test I scores and Iowa scores, and Post Test II scores and Iowa scores. Results in Table 17 show a low relationship between the two variables (r = .21, Significance of r = .16). This relationship held true for the Post Test II correlation, producing an r = .17, Significance of r = .26.

Table 17

Pearson Correlation Coefficients for the Risk-Taking Subscale and the Iowa Test of Basic Skills (Post Tests I and II)

<table>
<thead>
<tr>
<th></th>
<th>r</th>
<th>Sig. of r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Test I &amp; Iowa</td>
<td>.21</td>
<td>.16</td>
</tr>
<tr>
<td>Post Test II &amp; Iowa</td>
<td>.17</td>
<td>.26</td>
</tr>
</tbody>
</table>
Correlations By Gender:

Some differences in the relationship between Risk-Taking and Academic Achievement scores were found when reported by gender.

Table 18 shows that the male subjects produced a much higher relationship between the two variables on both the Post Test I correlation ($r = .38$, Significance of $r = .09$) and the Post Test II correlation ($r = .43$, Significance of $r = .049$). This is compared with the overall correlations for the groups when not differentiated by gender (Table 17). The correlations for male subjects are considered to represent a moderate relationship between the two variables. The Post Test II correlation is significant at the 0.05 level.

Correlational data for female subjects did not produce the same level of relationship between the two variables as did the male subjects. Table 18 results show a low relationship on Post Test I ($r = .12$, Significance of $r = .59$) and a negligible relationship on Post Test II ($r = .01$, Significance of $r = .97$). These findings are in line with the analysis of covariance results which also showed distinct differences between male and female subjects on overall risk-taking measurements.
Table 18

Pearson Correlation Coefficients for the Risk-Taking Subscale and the Iowa Test of Basic Skills by Gender (Post Tests I and II)

<table>
<thead>
<tr>
<th></th>
<th>r</th>
<th>Sig. of r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post Test I &amp; Iowa (Males)</td>
<td>.38</td>
<td>.09</td>
</tr>
<tr>
<td>Post Test II &amp; Iowa (Males)</td>
<td>.43</td>
<td>.049</td>
</tr>
<tr>
<td>Post Test I &amp; Iowa (Females)</td>
<td>.12</td>
<td>.59</td>
</tr>
<tr>
<td>Post Test II &amp; Iowa (Females)</td>
<td>.01</td>
<td>.97</td>
</tr>
</tbody>
</table>

Discussion of Findings

The results of the study point to the fact that the integrated outdoor adventure experience (O/HR/GP group) did impact more strongly on the risk-taking attitudes of the subjects. One might question whether the difference between this group and the Control group are really meaningful in light of the fact that the Control group was mostly females. However, the significant differences were also found between the O/HR/GP group and the other treatment group (H/R). This suggests that the effect of the integrated experience was real and not just the result of gender inequality in one group. This is further supported by the mean scores for females in the O/HR/GP group. These were also greater than those of both other groups, although no statistically significant differences were found.
The pattern in Post Test I of highest mean scores by the O/HR/GP group, median mean scores by the H/R group and lowest mean scores by the Control group was maintained in Post Test II. This was also true when the mean scores were analyzed by gender. These findings add even further support to the strong effect of the integrated experience on risk-taking attitudes compared to the other two groups.

Another distinct effect can be identified from the data, and that is the influence that the males had on the overall mean scores. In both Post Test I and Post Test II, mean scores for both the O/HR/GP group and for the H/R group were approximately 2.5 to 6.0 points higher than for females. This might suggest that the effect of the High Ropes Course, either as an isolated event, or as part of the integrated experience, impacted more on the overall risk-taking attitudes of the males than on the females. Unusually, the males in the Control group, however, scored lower than the females on Post Test II. No meaningful explanation can be given for this unusual occurrence.

The differences in risk-taking attitudes between males and females can also be seen in the correlational data. The relationship between risk-taking and academic achievement was much stronger with males than with females on both Post Test I and Post Test II. The r values for males were
moderate, with the Post Test II r values being significant. The r values for the females were low to negligible. A possible explanation for this difference may be greater cultural expectations for males to achieve. Taking risks of assorted types may be a result of males' greater motivation to achieve in order to meet standards set by our society.

Summary

This chapter summarized the data collected on the sample of high school students who served as the two treatment and one control groups in the study. Descriptive data was presented on the groups as well as statistics on the measurement of the dependent variable for repeated post tests. Analysis of covariance results were reported to explain the effect of treatments on dependent variable measurements. Results of the post hoc multi-comparison tests were also reported to show where the three groups differed significantly. Pearson Coefficient Correlation values were presented to show the level of relationship between the dependent variable and the variable, academic achievement.
CHAPTER V

SUMMARY, DISCUSSION, AND IMPLICATIONS

The introduction and review of literature chapters in this study have revealed some major areas appropriate for discussion.

The study was directed toward investigating the effects of an outdoor adventure experience on the risk-taking attitudes of high school students. The use of the experiential learning process was intended to involve the students in a holistic experience that integrated all domains of learning. Particular emphasis was placed on fostering affective learnings and personal growth.

Affective learning experiences have been determined to be an important facet of every student's education. Neglecting the affective needs of the student could produce an emotionally empty individual who expresses feelings in negative or inappropriate ways. This may ultimately effect other parts of his/her development and education.

The effect of any important event in one's life can be enhanced most effectively by personal reflection on the event. One way this enhancement can be accomplished is
through meaningful use of the experiential learning process. The findings suggest that outdoor adventure experiences can foster risk-taking attitudes in high school students, particularly when they are formally oriented to the experience and effectively processed following it.

Based on these premises then, the hope is that these students can apply these attitudes toward meeting the variety of challenges that they are still to face in the future. They can handle the uncertainty of pursuing a creative idea or reaching out for a goal. They can take on the responsibility of being leaders and not be threatened by the unknown consequences of making decisions for others.

**Purpose and Objectives**

The primary purpose of this study was to examine the effects of an outdoor adventure experience integrated into the experiential learning process on the risk-taking attitudes of high school students.

The most important research questions investigated were the following:

1. Will the integrated outdoor adventure experience produce changes in the risk-taking attitudes of high school students as measured by the Risk-Taking Subscale of the Jackson Personality Inventory?
2. Will gender produce a differing effect on the risk-taking attitudes of the students?

3. Is there a relationship between risk-taking attitudes and academic achievement as measured by correlations of the Risk-Taking Subscale and the Iowa Test of Basic Skills?

4. Is the relationship between risk-taking attitudes and academic achievement affected by gender?

**Procedures**

A sample of 75 students was selected from three intact high school biology classes. Out of this initial sample, 31 students chose not to participate in the study after formal written and oral solicitation was given. The three classes were randomly assigned to two treatment groups and to one control group. One treatment group participated in an isolated High Ropes Course experience. The second treatment group participated in a High Ropes Course experience that was integrated into the Experiential Learning Process. The single control group did not participate in any of the activities that the treatment groups did.

All three groups were given the covariate pre-test, Change, a subscale of the Personality Research Form, in order to statistically equate the groups. A repeated
post-test, Risk-Taking, a subscale of the Jackson Personality Inventory, was then given one day and eight days after treatment. The control group took the repeated post-tests at equivalent time intervals in order to maintain uniformity of experimental conditions and to control certain confounding variables.

Descriptive statistics were calculated to describe the sample on all dependent variables in the study. Analysis of Covariance was conducted to determine differences between groups and to determine differences between groups when they were distinguished by gender. The pre-test measure served as the covariate in the Analysis of Covariance calculations. Pearson Correlation Coefficients were also calculated to determine the degree of relationship between the dependent measure and academic achievement. Differences on the correlations by gender were also determined for the three groups.
Summary of Findings

Descriptive Data:

The 44 students in the sample were composed of ninth and tenth grade students, 52.3% female and 47.7% male. Males outnumbered the females in both the H/R group (60.0% to 40.0%) and the O/HR/GP group (58.3% to 41.7%). The females outnumbered the males in the control group (70.6% to 29.4%).

On the first dependent measurement, Risk-Taking (Post Test I), the O/HR/GP group achieved a higher mean score (11.75) than both the H/R group (11.20) and the Control group (8.00). On the second dependent measurement (Post Test II), the 0/HR/GP group again demonstrated the highest mean score of 14.00 compared with the H/R group (10.60) and the Control group (8.18).

Analysis of Covariance Findings:

When the dependent variable, Risk-Taking, was investigated to determine main effects of treatment, analysis of covariance calculations did not show any significant difference between groups on Post Test I (Significance of F= .069).
Post Test II calculations did produce significant differences between the groups (Significance of F = .003). A multi-comparison test, Fisher's Least Significant Difference, was performed to determine which groups were different. Results of this test showed that the O/HR/GP group differed significantly from both the H/R group (LSD = 3.11, difference = 3.51) and the Control group (LSD = 3.03, difference = 5.54). No significant difference was found between the H/R group and the Control group (LSD = 2.85, difference = 2.03).

Descriptive Data on Gender Differences:

When gender differences were investigated, Post Test I results showed that within all three groups, unadjusted mean scores for males were higher than for females. This was true for Post Test II also, except that females in the Control group scored higher than males.

Analysis of Covariance Findings By Gender:

Calculations of Analysis of Covariance produced distinct differences between the three groups when gender was considered.
Calculations were done on adjusted mean scores for male subjects on both Post Test I and Post Test II. Results showed that on Post Test I there were no significant differences between the three groups (F= 2.12, Significance of F=.151).

On Post Test II, however, significant differences were found (F= 19.24, Significance of F= .000). The Fisher's Least Significant Difference test was again calculated to determine which groups differed. Results showed that the O/HR/GP group differed significantly from the Control group (LSD= 2.94, difference= 8.98) and from the H/R group (LSD= 2.53, difference= 5.38). A significant difference was also found between the H/R group and the Control group (LSD= 2.80, difference= 3.60).

Significant differences were not found between the groups on either Post Test I or on Post Test II for female subjects.

Correlational Findings:

Pearson Coefficient Correlations were calculated to determine the relationship between risk-taking and academic achievement. The dependent measure was correlated with students' scores on the Iowa Test of Basic Skills. Results from Post Test I showed that there was a low relationship
between the variables \((r = .21, \text{Significance of } r = .16)\). Post Test II correlation with Iowa scores maintained this low relationship \((r = .17, \text{Significance of } r = .26)\). Neither of the correlations were significant at the 0.05 level.

**Correlational Findings by Gender:**

Correlations were calculated for the relationship between the dependent measure and academic achievement by gender. Results showed that the relationship was stronger with males than with females on both the Post Test I and Post Test II scores.

Post Test I correlations showed an \(r = .38\) (Significance of \(r = .09\)) for male subjects. This moderate relationship, although not significant, was much stronger than for females \((r = .12, \text{Significance of } r = .59)\).

Post Test II correlations showed that a significant relationship existed between the variables for male subjects \((r = .43, \text{Significance of } r = .049)\). Again, this moderate relationship was much stronger for males than for females whose scores showed a negligible relationship between the variables \((r = .01, \text{Significance of } r = .97)\).
Conclusions

Based on the findings in this study, the following conclusions can be drawn:

1. A singular High Ropes Course experience can produce increases in the risk-taking attitudes of high school students. The long term internalization of the effect, however, cannot be determined without additional follow-up post tests at intervals of longer duration.

2. An integrated outdoor adventure experience can produce increases in the risk-taking attitudes of high school students that are stronger than an experience that is not integrated. The long term internalization of the effect, however, cannot be determined without additional follow-up post tests at intervals of longer duration.

3. Gender differences would appear to have an effect on the risk-taking attitudes of students who participate in such outdoor adventure activities. Males who participated in either of the outdoor adventure treatment groups showed greater risk-taking mean scores than females.

4. The integrated outdoor adventure experience produced greater increases in risk-taking attitudes of high school students than the experience that was not integrated, regardless of gender.
5. A low relationship seems to exist between risk-taking attitudes and academic achievement scores as measured in this study.

6. A moderate relationship seems to exist between risk-taking attitudes and academic achievement scores among males. The relationship among females is negligible.

Discussion

The study sought to evaluate the effect of an outdoor adventure experience that was integrated into the experiential learning process on the risk-taking attitudes of high school students. This effort was largely exploratory in nature. Little research has been done in investigating ways to enhance affective changes in students in public school through structured outdoor adventure experiences. Beane (1985) and other educators have expressed strong concern that oftentimes affective education is ignored within our educational system. It is viewed as the soft side of education. The goal, therefore, was to determine whether one affective attitude, risk-taking, could be increased through formal outdoor adventure experiences. Stages of the experiential learning model (Joplin, 1982) were adapted in structuring the learning activities used with the primary
treatment group (O/HR/GP). This was identified as the Risk-Taking Enhancement Model (see Appendix A). The specific Activity Plans used to structure the experience around the model are described in Appendix B.

The Focus stage was designed around three important components: information receiving, familiarization, and individual goal setting.

Information Receiving was used to support Joplin's suggestion that the learner needs to be adequately informed about an upcoming event prior to involvement. This was done in the study through lecture and video-tape presentations on theories of risk-taking. The Familiarization discussion was designed to initiate the "Risky Shift" phenomenon as identified by Stoner (1961). The group discussions of personal risk-taking experiences were intended to encourage the adopting of some of the risk-taking perspectives of other group members. This "familiarization" process is considered to be an important component in triggering the risky shift (Bateson, 1966). Individual Goal Setting was the culminating activity in the Focus stage and was intended to bring personal relevance of the upcoming High Ropes Course experience to each student. Locke (1968) feels that achievement motivation is internalized most effectively when such goals are set. These goals should be specific, difficult but attainable, and near-at-hand. Students were
therefore directed to set three specific risk-taking goals for the next day's experience and were encouraged to challenge themselves by setting difficult, but realistic ones.

The Focus stage was a very important phase of the process. As pointed out earlier, many outdoor adventure experiences that are programmed through public schools are often isolated activities. They usually do not involve a pre-experience orientation (Focus). Rather students are simply immersed into the activity (Action). The Focus stage therefore, is suggested as having produced a significant impact on the results of this particular study. It helped the students find personal relevance within the total experience and created a direction from which the Action stage could emerge and from which new attitudes and learnings could be realized.

The Action stage was the actual outdoor adventure phase of the experience. It was the phase in which the students acted on their newly set goals. It brought the personal relevance of the challenges into action for each student. The reality of putting themselves in perceived risky situations forced them to look at their own motivations to achieve the goals they set for themselves. It was also the time during which the students had to interact with other students in ways that were unfamiliar to them. They had to
support each other emotionally, and in turn, sometimes ask for emotional support from others. They were challenged by the group leader to push their physical, social, and emotional limits, and were continuously reminded to work on the goals they had set for themselves. This Support and Feedback stage was integrated into the Action stage as a means of providing emotional security for the students. It also ensured that the students were made aware of their purpose for being there.

The last stage of the process was the Debriefing stage. During this phase group discussion centered around the processing of the just completed High Ropes Course experience. Students were led through this discussion session by the group leader. The intent was to move the students through Bloom's five levels of cognitive learning (Bloom, 1956). Specific questions were designed to help the students process the experience. Beginning with simple recall of the specific details of the experience, the students were then asked to analyze the events of the experience and attempt to find new meaning from the specific risks that they took. The discussion then culminated with the students being asked to share their feelings toward the experience and about the attainment of their individual goals.
The Debriefing stage was the crux of the learning process. The ultimate intent was to bring out the personal learnings of the students and to give them an opportunity to evaluate their personal goal attainment. The open group discussions placed each student in a position in which their self-evaluation was compared with the observations that others may have made of them.

It is suggested that the differences in risk-taking attitudes that were found between the three groups in the study resulted from the effect of the experiential learning process. This is not to suggest that the isolated High Ropes Course experience (H/R) did not have an effect. Increases in risk-taking attitudes were also realized through that experience. However, from a learning perspective, it would seem logical to suggest that the effect of the integrated experience would be internalized more readily and for a longer period of time. This would seem to be an important consideration when developing outdoor learning strategies to enhance affective development in students.

The effect of the goal-setting activity during the orientation phase was also an important component of the orientation process. The goals that the students were asked to set for themselves helped initiate the achievement motivation process. This supports Atkinson's (1958) theory that achievement motivation involves two important
components, a motive to succeed and a motive to avoid failure. Goal-setting, therefore, may have intensified the interaction between these two parts and led to increased effort to succeed.

The experiential learning process used in this study served as a framework in which relevant and meaningful risk-taking experiences could be programmed. It produced a greater effect on the risk-taking attitudes being investigated in the study. The results suggest the type of activities and experiences that public schools should use in programming outdoor adventure education for their students. Implications of the study in regard to programming will be presented in the next section.

**Implications**

There are numerous outdoor adventure programs across the country which program participants for the enhancement of affective development. Outward Bound, the National Outdoor Leadership School and others are examples of such programs. Unfortunately, the vast majority of these schools and programs are financially beyond the means of most public school students. The desired goal for meaningful affective learning experiences must therefore be met through experiences that can be integrated and programmed within the
curriculum of the schools. This means that a commitment by school administrators and teachers to recognize the value of such programs is needed. Financial investment in such a program must be generous enough to support facility development, equipment purchase, and salaries for staff.

There must also be a commitment to evaluate the effectiveness of the program in meeting the desired goals of meaningful affective learning. This study has shown the effect that an integrated outdoor adventure experience can have on risk-taking attitudes. There must be on-going efforts to further enhance the effectiveness of these types of experiences. Further research directed at improving the curriculum and evaluating the program must be a priority. Schools cannot become complacent with such programs and fail to build on the benefits that they offer. Outdoor adventure programs must not become the victims of budgetary cuts within the schools when money gets tight. Often they are perceived as frill experiences that contribute superficially toward meaningful student learning. This is precisely why the educational benefits of such experiences must be highlighted, built upon and improved within the regular curriculum.

Based upon the results of this study and the major implications just identified, the following research questions might be addressed in future studies:
1. Would multiple outdoor adventure experiences produce similar results as the integrated experience?

2. Would results be significant if the integrated outdoor experience was shorter in length?

3. Would results be significant if the treatments were used with other school populations or groupings?

4. Would results be significant with other age groups?

5. Would other types of outdoor adventure experiences produce similar results?

6. What scheduling and program improvements can be made in using the experiential learning process most effectively within the regular school curriculum?

7. What tools are most useful in evaluating the effectiveness of such programs?

Investing in affective education is going to require a committment by various levels of our educational system. Implementation of a well-rounded outdoor adventure program into the public schools will require that teacher education
institutions support these efforts by structuring their programs to include training in the skills and techniques of effective outdoor programming. The total effect of this effort will be the development of the whole student through all domains of learning. The experiential learning process is an invaluable educational philosophy that must not be ignored any longer. It's contribution to affective development of the individual has been shown to be significant and it's implementation within our schools is imperative.
Appendix A.

Risk-Taking Enhancement Model

PRE-EXPERIENCE ORIENTATION  OUTDOOR ADVENTURE EXPERIENCE  POST-EXPERIENCE PROCESSING

SUPPORT  FEEDBACK  FEEDBACK

FOCUS  ACTION  (DENRERIENING)

INFORMATION RECEIVING
A. Leader introduction to risk-taking theory
B. Video-tape presentation on risk-taking

future information receiving

SENSITIZATION
A. Group sharing of risk-taking experiences

future sensitization perspective

INDIVIDUAL GOAL SETTING
A. Physical risk-taking
B. Emotional risk-taking
C. Social risk-taking

future goal setting

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Appendix B

Activity Plans

**Group 1 (O/HR/GP):**

I. Pre-Experience Orientation  
II. High Ropes Course Experience  
III. Post-Experience Group Processing

**I. Pre-Experience Orientation**

*(Part 1):* **Information Receiving:**

**Activity:** Leader presentation of risk-taking theories

**Objectives:**
- to identify the major theoretical bases for individual risk-taking
- to provide perspective to students on their own risk-taking attitudes

**Content:** Overview of 4 theories of risk-taking

A. risk-taking as gambling decision-making  
B. risk-taking as achievement motivation  
C. risk-taking and sensation-seeking  
D. risk-taking as societal value

**Activity:** Video-tape presentation: "Chancing It" (ABC, 1982)

**Objectives:**
- to provide students with differing perspectives on risk-taking from people who are identified as risk-takers  
- to identify different types of risk-taking and risk-takers

**Content:** Personal interviews with identified risk-takers and footage of risk-taking activities
(Part 2): Familiarization

Activity: Group discussion and sharing of personal risk-taking experiences

Objectives:

-to orient the students to the group sharing climate that is an integral part of the total experiential learning process
-to provide students with perspectives of the risk-taking attitudes of other students
-to initiate the "risky shift" process

Content: Discussion of the following questions/topics:

A. What risks have you taken that you feel had significant meaning for you?
B. When did this event occur?
C. Why do/did you consider it to be risky?
D. Identify another meaningful risk that you have taken that is very different than the one you just shared with us.
E. Why was it risky?

(Part 3): Individual Goal Setting:

Activity: Students write down three risk-taking goals for the upcoming High Ropes Course experience

Objectives:

-to encourage students toward personal motivation for involvement in the High Ropes Course experience
-to identify three types of risk-taking goals for the High Ropes Course experience

Content: Students asked to think about and write down:

A. One physical risk-taking goal
B. One social risk-taking goal
C. One emotional risk-taking goal
II. **High Ropes Course Experience**

Agenda:

A. Equipment distribution  
B. Presentation of the course contract  
C. Tour and description of the course  
D. Identification of the challenge extremes on the course  
E. Transfer/safety procedures and climbing commands  
F. Participation on High Ropes Course

Guidelines for leader/participant interactions:

A. Leader gives on-going challenges to participants.  

B. Leader gives on-going reminders to participants not to hang on their safety support lines and to trust their own abilities instead.  

C. Leader keeps participants moving throughout the course in order to maximize activity time.  

D. Leader gives systematic encouragement to participants.  

E. Leader encourages participants to give emotional support and encouragement to other participants.
III. Post-Experience Group Processing

A. KNOWLEDGE/COMPREHENSION:

Objectives:

- to help the student recall the specific details and feelings encountered during the experience
- to help the student understand why certain feelings about the experience occurred

Processing Questions:

1. Can you recall a time during the experience in which you felt physically scared or at risk? Can you identify where in your body you felt this fear most? Describe the feeling.

2. Can you think of a time during the experience when you took an emotional risk? What was the risk?

3. Can you recall a particular social risk that you took during the experience? Did it involve another person in the group? What was the risk that you took?

4. What was your main thought while you were in this risky situation? What were you feeling?

5. Did you express that feeling to others? Did expressing this feeling to others help get rid of the feeling or make it stronger?

B. APPLICATION:

Objective:

- to assist students in applying the concepts and principles learned during the experience to new situations

Processing questions:

1. Have you ever had these same feelings in other situations in which you were at risk?
2. Was the previous situation physically, socially, or emotionally risky?

3. Did you react any differently this time than in the previous situation?

C. ANALYSIS:

Objective:

-to help students identify the component parts of the experience and to form relationships between these parts

Processing questions:
1. During the time that you felt you were taking the risk, what particular part of the situation seemed to be the riskiest part? Did any combination of parts create more risk than single parts?

D. SYNTHESIS:

Objective:

-to direct the students toward an integration of the component parts of the experience into a new method of dealing with similar risk-taking situations in the future

Processing questions:
1. In what particular ways did you deal with the risk when you faced it? Did you use any new ways?

2. Can you think of situations in which you might use some of the same strategies to deal with other risks?

E. EVALUATION:

Objectives:

-to help students in their evaluation of their performance during the experience

-to help students determine the attainment of their pre-activity goals
Processing questions:

1. What type of risk was most challenging for you during the experience? Was it emotional, social, or physical?

2. How do you think you dealt with the risks that you faced during the experience? Do you feel good about the risks that you took?

3. Do you feel that you took more risks today than you do during a normal day? Name one that was out of the ordinary.

4. Did you reach any of the three goals that you set for yourself before the experience? Which ones? Which one was the hardest to reach?

5. Do you think you may take more chances in the future in other risky situations? Why or why not?

Group 2 (H/R):

High Ropes Course Experience

Agenda:

A. Equipment distribution
B. Presentation of the course contract
C. Tour and description of the course
D. Identification of the challenge extremes on the course
E. Transfer/safety procedures and climbing commands
F. Participation on High Ropes Course

Guidelines for leader/participant interactions:

A. Leader gives on-going challenges to participants.

B. Leader gives on-going reminders to participants not to hang on their safety support lines and to trust their own abilities instead.

C. Leader keeps participants moving throughout the course in order to maximize activity time.

D. Leader gives systematic encouragement to participants.

E. Leader encourages participants to give emotional support and encouragement to other participants.
**Oral Solicitation:** (To treatment groups 1 and 2)

I. Experimenter Introduction/Biographical Information
   A. OSU doctoral candidate conducting required research
   B. Coordinator of the Program of Outdoor Pursuits
   C. Extensive formal and informal training and experiences in outdoor adventure education areas

II. Description of the Study
   A. Purpose of the study
      1. To access the effect of outdoor adventure experiences on various individual attitudes of students.
      2. To access the appropriateness and feasibility of using the various measurement scales in a future outdoor adventure program in the district.
   B. Description of the High Ropes Course
      1. Located at the Adventure Education Center, Camp Mary Orton, Worthington, Ohio.
      2. A dangling, hanging, swinging obstacle course 40' in the air.
      3. Physically and emotionally challenging
   C. Explanation of the general nature of the treatments
      1. **Group 1:** High Ropes Course Experience
      2. **Group 2:** Pre-Experience Orientation/ High Ropes Course/ Post-Experience Group Processing
      3. **Group 3:** Control group
   D. Notification of the use of pre and post-test measurements

III. Risks of Involvement in the Study
   A. Physical risks
      1. Normal muscular tiredness and stress from a physically challenging activity.
      2. Minor bumps and scrapes from being physically involved and in contact with the course, itself.
      3. No possibility of falling to the ground
   B. Emotional risks
      1. Dealing with fear of heights
      2. Fear of taking on this challenging experience
   C. Social risks
      1. Discussion and sharing of experiences and feelings with others in the class.
      2. Participating in front of others
IV. Safety Procedures Used in the Study
   A. Overview of safety record of the course
   B. Use of high quality/high strength mountaineering equipment
   C. Trained personnel manage the safety systems

V. Consent to Participate in the Study
   A. Participation in the study is totally voluntary
      1. Not required by the school district
      2. Non-participation will not have any bearing on course grade or course evaluation.
      3. Participation does not involve any extra credit option for the regular class requirements
   B. Signed official consent form (HS-008D)
   C. Completed and signed Adventure Center/Camp Mary Orton form: "A Statement of Understanding-Medical Information"
   D. Deadline for return of forms to classroom teacher
Written Solicitation: (to treatment groups 1 and 2)

Dear Student:

As a doctoral candidate at the Ohio State University, I would like to take this opportunity to inform you of the research study that I will be conducting at Delaware High School very soon. I would like to have your willing participation in the study, so I will attempt to inform you of the specifics of the study, including any risks that you may face.

The purpose of the study is to measure the effect of a specific outdoor adventure activity on various individual attitudes of high school students. The specific activity being used in the study will be an intense physical and emotional involvement on a High Ropes Course. This course can be described as a series of dangling, hanging, and swinging obstacles that will pose various risk-taking and problem-solving situations to you. You will be challenged by these obstacles, both physically and emotionally as you move through the course during a period of approximately four hours.

The course is situated at a height of approximately 40' above the ground, and is built with high strength construction cables that tie the course into the large support trees to which the obstacles are attached. Safety during participation on the course is guaranteed by the use
of high quality/high strength mountaineering climbing ropes and personal safety harnesses from which you will be attached at all times to the support cables.

Supervision of the overall safety systems will be conducted by myself and another employee of the Adventure Center staff. We are both trained and certified Ropes Course Instructors and I, personally, have 15 years of formal and informal training and experience in technical rockclimbing and related outdoor adventure activities and skills. I am also the Coordinator of the Program of Outdoor Pursuits at the Ohio State University where I oversee all aspects of the program.

Specific risks that you may encounter while participating in the study will be more "perceived" rather than "real" risks. The 40' height may pose a fear of heights to some of you, whereas the physically demanding nature of the course, in general, may seem like a risky situation for others. Hopefully, your understanding and trust of the course and the safety equipment will help reduce any anxiety that you may encounter while on the course and allow you to explore this unique learning opportunity in a positive way.

Another consideration in your deciding to participate in the study is the need for your open and willing involvement in pre and post-activity discussions and sharing of the experience with other members of your class. Although
there is no requirement in this regard, the enhancement and enjoyment of the experience will be greatly dependent upon your total involvement in all phases of the study. Although no participant will be pressured in any way to do something they choose not to, strong encouragement to push oneself, both physically and emotionally, will be an on-going part of the experience.

Pre-test and post-test measurement scales will also be given in order to determine attitudinal changes that may result from the experiences that you will be involved in. These tests are straightforward True/False types of self-opinion questionnaires. The results of these tests will not be used for any grade or to fulfill any course requirements for school. The results will remain confidential and are protected by legal guidelines put out by The Ohio State University Research Foundation. I do ask, however, that you take these tests seriously, as they are being considered as possible evaluation tools to be used in the school district's future outdoor adventure program. The intent is to determine the usefulness of the scales in assessing attitude change that may result from these experiences.

Your participation in the study is entirely on a volunteer basis and your decision not to participate will
not be reflected in any grade and/or evaluation in your regular classes.

Thank you very much for your time and consideration in reading this letter. Without your willing participation, this study will not be possible. Please make sure that your parents or legal guardians also read this before they sign the required consent forms given to you.

I hope you will help me in this study, and at the same time, have an exciting and unique outdoor adventure experience. If you have any questions, please feel free to call me at 548-5381.

Sincerely,

Mike Wisnyai
Coordinator
The Program of Outdoor Pursuits
The Ohio State University
Oral Solicitation (Control Group)

I. Experimenter Introduction/Biographical Information
   A. OSU doctoral candidate conducting required research
   B. Coordinator of the Program of Outdoor Pursuits

II. Description of the Study
   A. Purpose of the study
      1. To access the effect of outdoor adventure experiences on various individual attitudes of students.
      2. To access the appropriateness and feasibility of using the various measurement scales in a future outdoor adventure program in the district.
   B. Notification of the use of pre and post-test measurements.

III. Consent to Participate in the Study
   A. Participation in the study is totally voluntary
      1. Not required by the school district
      2. Non-participation will have no bearing on course grade nor course evaluation
   B. Letter to be read by parents/guardians
   C. Signed official consent form (HS-008D)
   D. Deadline for return of consent form to classroom teacher
Written Solicitation (Control Group)

Dear Student:

As a doctoral candidate at The Ohio State University, I am asking for your help in conducting a research project for program requirements at the university. I would like to have your willing participation in the study, so I will attempt to inform you of your part in the study.

The Delaware City Schools is investigating the possibility of developing an Outdoor Adventure Education program for district-wide implementation. As part of this investigation, I am directing a portion of my research project toward accessing the feasability and usefulness of a few measurement tests that may be used in the program. The first step is to give these tests to students at the high school in varied settings within the study, and then analyze the results. The tests will be scheduled during your regularly scheduled classes so that there will be no disruption of your normal routine at school. You will be given one test the first day, followed by a second but different test two days later, followed by a repeat of the second test about one week later.

These tests are personality measurements that will be used to look at individual attitudes and personality
characteristics. All results from these tests will remain confidential and will not become part of any official school records. The results are protected through guidelines and ethical standards set up by The Ohio State University Research Foundation.

Participation in this study is totally volunteer and no parts of the study are required by any teacher or school administrator. Non-participation will not be reflected in your grade in any way and will not be part of any sort of evaluation for the course that you are currently in.

Before you agree to participate in this project, I ask that you have your parents read this letter so that they are completely informed of the specifics in the study. Once they have done this, please have the required consent form signed by them and return it to your classroom teacher immediately.

Your willing help in this project is greatly appreciated and I hope that the results from the study will contribute in a meaningful way to the Outdoor Adventure Program that the school district is looking to implement in the near future. Thank you very much for your help and consideration.

Sincerely,

Mike Wisnyai
Coordinator
The Program of Outdoor Pursuits
The Ohio State University
Appendix D.

High Ropes Course
LIST OF REFERENCES


Barrick, K. (1985). In-class notes from the university course Agricultural Education 887: Analysis and interpretation of data. The Ohio State University, Columbus, Ohio.


Warmbrod, J. R. (1987). In-class notes from the university course Agricultural Education 886: Research design. The Ohio State University, Columbus, Ohio.


