

DISSERTATION

**The Impact
of an
Experiential/Adventure
Intervention
on
Male Adolescents
with
Special Needs**

Submitted by

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In partial fulfillment of the requirements

For the degree of Doctor of Philosophy

Colorado State University

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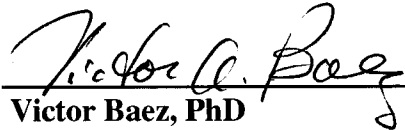
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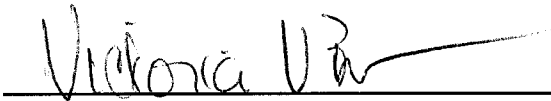
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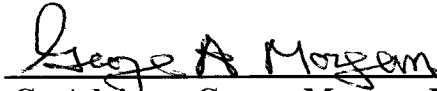
WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED
UNDER OUR SUPERVISION BY JAMES PATRICK HARRIS ENTITLED THE
IMPACT OF AN EXPERIENTIAL/ADVENTURE INTERVENTION ON MALE
ADOLESCENTS WITH SPECIAL NEEDS BE ACCEPTED AS FULFILLING IN
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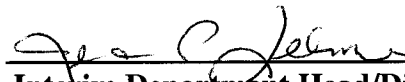
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ABSTRACT OF DISSERTATION
THE IMPACT OF AN EXPERIENTIAL/ADVENTURE
INTERVENTION ON MALE ADOLESCENTS WITH SPECIAL
NEEDS

The number of special needs, high school age students who stay in school and graduate is low and needs attention. Further, it is unclear what the impact of the No Child Left Behind policy will ultimately have on vulnerable groups such as students identified with special needs. For approximately 30 years, the “I” Team programs of the Cherry Creek School District have supported students with special needs. The “I” Teams have as goals for each attending student, personal growth and academic achievement. This study examined the impact of an experiential/adventure intervention on male students with special needs.

The adventure intervention process stage took the form of a 5-day hiking and camping trip to the mid-eastern, high desert region of Utah in March 2005 and all pre-adventure staging activities. This study examined the impact of an adventure education intervention on attendance, academic achievement, and self-efficacy behaviors and perceptions of male high school students (ages 16-21). The study approach was a nonequivalent comparison group, quasi-experimental, pretest, posttest 1, and posttest 2 design of moderate strength. The gain score approach was utilized for primary data analysis and independent *t*-tests were implemented.

Students who participated in the entire intervention process were found to have higher levels of general self-efficacy (GSE) and social self-efficacy (SSE) perceptions

than their control group counterparts. Additionally, adventure group students had improved academic achievement and significantly fewer absences than the no adventure comparison group. Self-efficacy data collected by staff in the field supported the quantitative findings regarding students' self-efficacy perceptions; on average, 9 out of every 10 students were observed performing at high levels on the self-efficacy checklist through the accomplishment of related tasks and behaviors.

Ultimately, this study strengthened service provision to male students identified with special needs while also making an important contribution to research knowledge regarding experiential/adventure education. Specifically, the examination of adventure education processes via a valid and reliable study methodology produced evidence based data supporting a previously suspect intervention strategy.

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May you all walk well!

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CHAPTER 1 INTRODUCTION

Background

In every public school system, districts are responsible for educating students with a variety of issues including those with special needs. For the 1999 - 2000 school year, records suggest approximately 44% of students with disabilities (percentage for all disabilities combined) failed to achieve graduation and 6 out of 10 individuals identified with emotional disturbances failed to gain a standard high school diploma (United States Department of Education, 2002). In the current reform climate of “No Child Left Behind” (NCLB) that seeks to raise achievement standards for all students while holding people and institutions accountable, the jury remains out whether special needs individuals who tend to struggle in rigid systems will be supported (Mandlawitz, 2004; NEA Today, 2004; Rouse, 2004). Several public education programs that seek to support students with special needs while also recognizing academic achievement are the “I” Teams (consisting of five separate but similar units) called the Cottage, Manor, Ranch, Estate, and the Outback located in the metropolitan Denver, Colorado area.

Each “I” Team program is an alternative, public education setting supporting approximately 50 students with special needs. Students range in age from 16 to 21 and include mostly juniors and seniors seeking graduation. Male students comprise approximately 70% of the enrollment and females the remaining 30 percent. Special need categories are fourfold. The first, Emotional Disabled includes students with issues

related to bi-polar, depression, and oppositional defiant type disorders to name several. The second is referred to as Perceptual/Communicative primarily covering learning disorder type issues. In this setting, the third category is Physical Disabled and comprises students identified with attention deficit or hyperactivity disorders. Lastly, Speech/Language is made up of students who have struggled with verbal communication to a level of impairment.

Moreover, the majority of “I” Team students arrive with years of unsatisfactory attendance and sub-par academic achievement. The programs are considered interdisciplinary, team environments consisting of a program leader, special education and vocational teachers, para-professionals called mini-course instructors, an office manager, and a mental health consultant. In general, the programs have essentially two goals for all students; personal growth and academic achievement (Schettler, 2003).

To achieve the stated goals a multitude of intervention strategies are implemented by the team and community. The programs function as one significant intervention for special needs adolescents; individuals who would probably drop out of school without achieving a diploma. Within this context, there are six main components of the primary intervention. Those components are case management, vocational education, social skill development, academic instruction, mental health support, and experiential/adventure education. This study examined the impact of an experiential/adventure intervention on male students with special needs.

Statement of the Research Problem

The number of special needs, high school age students who stay in school and graduate is low and needs attention (United States Department of Education, 2002). Further, it is currently unclear what the impact of the NCLB policy will ultimately have on vulnerable groups such as students identified with special needs. As previously mentioned, the “I” Teams have as goals for each attending student, personal growth and academic achievement thereby supporting their movement toward productive citizenship. One critical aspect to achieving these goals is students must maintain satisfactory attendance. “I” Team students who perform satisfactorily in the classroom may achieve academic credit but only if their attendance is consistent. That is, students who exceed seven absences over a nine week quarter jeopardize their ability to achieve academic credit. Accordingly, attendance is directly and indirectly connected to academic achievement. And, academic achievement is obviously critical to completing diploma requirements. For every nine week academic course the students can earn .25 of academic credit. Each student needs approximately 21 credits to graduate.

Another key to this endeavor is the ability of students to develop a stronger sense of self-efficacy. Albert Bandura (1977) defines perceived self-efficacy as the expectation that one can successfully perform a behavior. Self-efficacy beliefs affect individual functioning indirectly by influencing a person’s cognitive, motivational, affective, and selection processes. People with high level self-efficacy construct successful life scenarios, set challenging goals, persist in the face of difficulty, and better control disturbing thoughts (Bandura, 1977; Bandura, 1982; Gredler, 2001). Specific to this study, the research problem examined the impact of experiential learning, specifically

adventure education, on attendance, academic achievement, self-efficacy behavior based adventure education skill development, and general self-efficacy perceptions of male high school students primarily identified with special needs.

Research Questions

The following questions were developed based on statement of the research problem, literature review, and the necessity to examine current intervention strategies for male adolescent students with special needs.

1. Are there differences between the gains of the two levels of pre-adventure process (pre-adventure staging versus no pre-adventure staging) of the experiential/adventure intervention on perceptions of self-efficacy?
2. Are there differences between the gains of the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to perceptions of self-efficacy?
3. Are there differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to academic achievement?
4. Are there differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to attendance?

5. What percentage of male “I” Team students participating in the adventure intervention stage exhibit self-efficacy behavior based adventure education skill development?

Conceptual & Theoretical Intervention Framework

Defining *experiential education* can be as simple as the statement “learning by doing” but limited as to the true, complex nature of its origins. The experiential approach to learning as described by Guthrie (2003) is:

When education is said to be *experiential*, it means that it is structured in a way that allows the learner to explore the phenomenon under study - to form a direct relationship with the subject matter - rather than merely reading about the phenomenon or encountering it indirectly. Experiential learning, then, requires that the learner play an active role in the experience and that the experience is followed by reflection as a method for processing, understanding, and making sense of it. Experiential education, most generally, occurs in different kinds of programs that have as their goal the construction of knowledge, skills, and dispositions from direct experience. (vol. 2, p. 760)

Common features of adventure type experiential programming as described in an article by Hattie, Marsh, Neill and Richards (1997) include:

(a) wilderness or backcountry settings; (b) a small group (usually less than 16); (c) assignment of a variety of mentally and/or physically challenging objectives, such as mastering a river or hiking to a specific point; (d) frequent and intense interactions that usually involve group problem solving and decision making...The most striking common denominator of adventure programs is that they involve doing physically active things away from the person’s normal environment. (p.45)

The history of learning through experience is incredibly rich. It can be stated that all learning is based on some type of experience and perhaps even learned through a defined experiential process (Joplin, 1981). In fact, learning via experience has been passed on through the years from parents to children, from master to apprentice, through the centuries to the present time with numerous experiential programs offering services

such as vocational training, internship placements, and adventure learning to name a few. In terms of the historical recognition in this country, the roots of the movement can be traced to the progressive era of the early 20th Century (Kraft, 1984).

Regarding the underlying theoretical constructs of experiential education, persons from disciplines such as philosophy, education, psychology, theology, political science, anthropology, and minority studies as well as experiential education oriented field practitioners have made contributions to the endeavor (Warren, Sakofs, & Hunt, 1995). Where it is quite possible to go back through history to ancient civilizations such as Greece and the works of Aristotle and Plato to find philosophical underpinnings of experiential learning, the focus of this work covers relatively recent historical benchmarks. The origins of experiential learning can be found in the works of practitioner Laura Joplin, developmental psychologist Jean Piaget, educators Paulo Freire and Karl Hahn, and philosopher-educator John Dewey.

Both Dewey and Hahn's philosophy were preoccupied with the connection of education and the democratic process. Hahn's approach to education was a transactive process between student and educator using experience as the common thread (Itin, 1999). Where Freire's works are most often identified with radical thought, there is certainly evidence of shared themes with the previously described perspectives of both John Dewey and Kurt Hahn. To begin, all three are interested in the self-efficacy of the individual to participate in the democratic process, meaning action and political awareness. Secondly, each advocated for the understanding of subject matter in the context of environment or within experience. Finally, there is a common thread where the teacher actively engages the learner as participant in the process (Itin, 1999).

Piaget's most important point, in terms of experiential education, is that intellect grows through interaction with things and people. His extensive research regarding developmental stages provides justification for the use of concrete and action oriented methods in presenting ideas and concepts (Kraft, 1984). Drawing on the point that experience minus reflection is not experiential learning, Laura Joplin (1981) in her seminal work *On Defining Experiential Education* provides critical insight. She shares:

The process is often called an 'action-reflection' cycle. The process is generally referred to as a cycle, on-going and ever-building with the later stages being dependent on the earlier stages...the five-stage model is organized around a central hurricane-like cycle, which is illustrated as challenging action. It is proceeded by a focus and followed by a debrief. Encompassing all is the environment of support and feedback. The five stages are one complete cycle, where completion of the fifth stage is concurrent with commencing the first stage of the following cycle. (p. 17)

Study Significance

In terms of significance, two main points need to be made. First, the number of students with special needs that complete their high school careers is low and needs attention (United States Department of Education, 2002). Second, in terms of NCLB, where there seems to be general support for the premise of reform, professionals, and families are apparently sensing something different in policy implementation. That is, parents in particular are beginning to have significant questions about the use of single tests (such as the CSAP in Colorado) to determine proficiency. They are beginning to question "What is proficient or competent?" There is a sense that the better the professionals and government get at the testing game, the more disconnected the community and the public become. Parents report the support of holistic education beyond the basics while going one step farther suggesting a key piece to the public

educational process is that their children be recognized and treated as individuals not numbers (Waters, 2004).

Delimitations & Limitations

A delimitation related to the study was connected to the chosen sample. That is, male students attending the “I” Team programs were identified for examination while females were not. In terms of conducting the study, resources and time availability of the researcher impacted the size of the project. Frankly, with finite time and resources the decision was made to study the impact of an adventure intervention on male adolescents based on the fact that approximately 70 % of the students served by the programs are male. Another delimitation was the non-use of the unselected group of male students. The unselected group existed due to the limited slots for the adventure intervention and the selection process by “I” Team staff members. Approximately 40 students were not utilized in the final analysis but could have proved interesting subjects for another related design.

Study limitations were linked to the chosen sample, the related setting in terms of unpredictability, and the self-efficacy (SE) instrument. The majority of “I” Team students come from failed educational experiences. Moreover, the “I” Team programs are voluntary by design and as such students were free to come and/or go. Anticipated attrition in sample numbers proved correct but not overly problematic. The unique personalities of adventure trip leaders from sister programs thought once to be a potential issue did not materialize due to meticulous communication and coordination of activities. Researcher bias, as it pertained to intimate familiarity with a portion of the adventure

intervention group and vague knowledge of the control group was a consideration and was addressed. In terms of the SE instrument, reliability for the social self-efficacy (SSE) sub-scale was not as high as perhaps desired. That is, where a Cronbach alpha of .63 may be permissible for basic research purposes the stated results should be considered with appropriate caution. The strengths supporting this study far out numbered any drawbacks. Beyond the stated points of study significance, this project provided valuable information for the continued support of future, experiential/adventure education type programming within the Cherry Creek “I” Team system as well as possible extrapolation to other, similar settings with consumer discretion.

Researcher’s Perspective

For approximately fourteen years I have worked as a human service provider. The foundation of my work is based on experience and education. Field based experience with homeless individuals, substance abusers, community development, and special education students within the Cherry Creek School District and graduate level study have helped to form my worldview. Primarily, I have worked to develop and implement intervention strategies targeting individual, family, organizational, and community issues. In terms of education, I have consistently pursued knowledge and wisdom to strengthen my ability to advocate and serve. As such, I have successfully completed a graduate degree in Social Work and am now experiencing the challenge of doctoral level study. In short, I view research oriented study as an opportunity to expand my current knowledge base thereby becoming a better practitioner and teacher.

In testament to my previous statement, I began my career as a human service provider in 1991. My first role was as a community advisor in Honduras, Central America while working as a Peace Corps Volunteer. For two and a half years, I worked in unison with a team of Honduran Nationals providing community assistance to a Spanish speaking, non-governmental organization fighting for the preservation of natural resources. Reflecting upon my experience as an international social worker, I made a personal and professional commitment to continue my work in service to others.

In 1994, I accepted a youth employment coordinator assignment in Denver, Colorado. My initial position was co-sponsored by Volunteers in Service to America (VISTA) and Urban Peak, a center for homeless and runaway youth. Specifically, my responsibilities included the creation and coordination of an employment program designed to assist homeless youth exit street life, as well as the facilitation of interactive groups, and community outreach. Over the course of a three-year association with Urban Peak my duties became more diversified. Additional responsibilities included street outreach to homeless youth emphasizing HIV education and testing; coordinating and facilitating weekly HIV awareness groups; and counseling high-risk individuals.

Approximately two years later I went to work for Project Safe as a professional research coordinator. My duties at the project were to coordinate research participation, data collection, and treatment referrals for injection drug using (IDU's) adults involved with an HIV prevention study. Moreover, I was responsible for implementing motivational and harm reduction intervention strategies while also administering individual counseling, case management, and HIV education. To compliment my field experience, I then enrolled at Colorado State University to study graduate level social

work. Through the School of Social Work at Colorado State University, I was exposed to an academic experience that was challenging, thought provoking, and supportive thereby laying the foundation for continued, advanced study.

At present, I am employed as a School Social Worker with the Cherry Creek School System. Specifically, my placement is with the “I” Team Cottage supporting adolescents with special needs. I provide mental health support to students, student groups, and their families. In addition, I am involved with community development, policy consultation, crisis intervention, and emotional and behavioral assessment.

Regarding researcher bias, as it pertains to intimate familiarity with a portion of the adventure intervention group and vague knowledge of the control group, my response is precise. Obviously, I am committed to working with at-risk population. Yet, this should not be interpreted as support without ethics. In short, my past experience and current activities greatly inform my perspective regarding research. The ethics of conducting human subject research was considered and my response can be summed up in one statement that is part and parcel to the profession of social work and mental health. That response is: *do no further harm*.

CHAPTER 2

LITERATURE REVIEW

Historical Perspective

The history of learning through experience is incredibly rich. It can be stated that all learning is based on some type of experience and perhaps even learned through a defined experiential process (Joplin, 1981). In fact, learning via experience has been passed on through the years from parents to children, from master to apprentice, through the centuries to the present time with numerous experiential programs offering services such as vocational training, internship placements, and adventure learning to name a few. In terms of the historical recognition in this country, the roots of the movement can be traced to the progressive era of the early 20th Century (Kraft, 1984).

John Dewey, considered by some as the father of experiential learning and education, was a progressive era philosopher, psychologist, and educator who over the course of his lifetime (1859-1952) contributed to the global discourse regarding the purpose and direction of public education for the masses and society. In short, he rejected both authoritative teaching methods that emphasized rote, subject-matter centered learning as well as meaningless, experience based practice as can be seen in his work *Experience and Education* first published in 1938.

Further, Dewey established two primary principles underlying his perceptions of experience and education. Those are continuity and interaction. By continuity, Dewey refers to an experiential continuum exemplified through the positive growth of physical,

intellectual, and moral development. The second principle, interaction, refers to the balance or acknowledged inclusion of both external and internal aspects of learning and experience. Experience is said to always involve a transaction between the individual learner and his or her environment whether the process takes place in or out of the classroom (Kraft, 1984).

Another individual who contributed significantly to the experiential movement was German born practitioner and educator Kurt Hahn (1886-1974). Hahn, perhaps best known for his development of Outward Bound programs (the first around 1941 in England), emphasized personal and social growth through challenge type experience, and was also instrumental in setting up academic schools in Europe and Great Britain. The schools, including Salem in Germany and Gordonstoun in Scotland as well as the Outward Bound programs were based upon Hahn's belief that modern life had eroded certain values such as self-discipline, fitness, initiative, imagination and compassion. In response, Hahn placed great emphasis on non-competitive physical activities and democratic forms of social cooperation. Further, it is generally recognized that as an educator, Hahn was always developing ways to include the out-of-doors as an experiential education, learning type environment (James, 1990). Similar to Dewey, Hahn's philosophy was also preoccupied with the connection of education and the democratic process. Hahn's approach to education was a transactive process between student and educator using experience as the common thread (Itin, 1999).

An additional contribution to the philosophical foundations of experiential education comes from Paulo Freire (1921-1997). Freire, a Brazilian educator and philosopher, was an outspoken critic of traditional education methods that in his opinion

sought to submerge the masses into a life of servitude and abject poverty. Through his work and development of adult literacy and critical consciousness theories, he saw education in the context of radical social change that would ultimately liberate and democratize the Brazilian people (Itin, 1999).

Freire (1970) saw the teacher-student relationship in the traditional model as “suffering from narration sickness” (p. 57) suggesting the teacher knowing all, and the student, devoid of experience, nothing. Traditional education becomes an act of depositing information into an empty receptacle represented by the student. This banking model to education requires students to patiently receive, memorize and repeat back the provided information while the teacher, in a position of power, disseminates knowledge and is ultimately responsible for evaluation (Freire, 1970).

In terms of a liberating educational process, he was adamantly opposed to individuals being perceived as objects and empty vessels meant for domestication. Freire (1970) saw the traditional, banking model as alienating not liberating; authentic liberation was seen as:

The process of humanization - is not another deposit to be made in men. Liberation is a praxis: the action and the reflection of men upon their world in order to transform it. Those truly committed to the cause of liberation can accept neither the mechanistic concept of consciousness as an empty vessel to be filled, nor the use of banking methods of domination (propaganda, slogans-deposits) in the name of liberation. (p.66)

Where Freire’s works are most often identified with radical thought, there is certainly evidence of shared themes with the previously described perspectives of both John Dewey and Kurt Hahn. To begin, all three are interested in the self-efficacy of the individual to participate in the democratic process, meaning action and political

awareness. Secondly, each advocated for the understanding of subject matter in the context of environment or within experience. Finally, there is a common thread where the teacher actively engages the learner as participant in the process (Itin, 1999).

In terms of psychological connections to experiential education, many influences from various schools of thought can be identified. Yet, one individual more than others is held up as having a significant impact on the understanding and development of learning by experience. That individual is developmental psychologist and philosopher, Jean Piaget.

Piaget is principally recognized for his six decade pursuit of how knowledge development occurs in human beings, specifically children. His theoretical framework identified as “genetic epistemology” suggests that cognitive structures are patterns of mental or physical action that are related to acts of intelligence and most importantly correspond to stages of child development (Piaget & Inhelder, 1969). Piaget identified four primary developmental stages; sensorimotor, preoperations, concrete operation, and formal operation as summarized in Table 2.1.

Piaget’s most important point, in terms of experiential education, is that intellect grows through interaction with things and people. His extensive research regarding developmental stages provides justification for the use of concrete and action oriented methods in presenting ideas and concepts (Kraft, 1984).

Table 2.1. *Jean Piaget's Stages in the Mastery of Operations*^a

<i>Stage</i>	<i>Principal Features</i>
Sensorimotor period (Age 0-2)	Spans from birth to approximately two years of age, recognizes infants as unable to make connections outside of themselves. They are continuously learning by trial and error. They learn by shaking things, putting things in their mouths, and throwing objects; through experimentation they begin to figure out their worlds.
Preoperational period (age 3~7 years)	This stage is highlighted by the recognition that children are able to think in symbolic terms. Pretending, verbalizing, understanding past and future while complex thoughts like comparison, time and cause and effect are beyond capability.
Concrete operation period (age 8~11)	See children as gaining increased insights into events beyond their own existence. When information is presented concretely, comparisons and abstract thought begins to form.
Formal operational period (Age older than 12)	Adolescents go from concrete operation thought to symbolic processes of representative logic; thinking involves abstractions, and deductive reasoning.

^areference: Science Odyssey: People and Discoveries, 1998

Building on the previous perspectives, another key aspect to understanding experiential education is the identification of constructs that make up the process.

Drawing on the point that experience minus reflection is not experiential learning, Laura Joplin (1981) in her seminal work *On Defining Experiential Education* provides critical insight. She shares:

The process is often called an ‘action-reflection’ cycle. The process is generally referred to as a cycle, on-going and ever-building with the later stages being dependent on the earlier stages...the five-stage model is organized around a central hurricane-like cycle, which is illustrated as challenging action. It is preceded by a focus and followed by a debrief. Encompassing all is the environment of support and feedback. The five stages are one complete cycle, where completion of the fifth stage is concurrent with commencing the first stage of the following cycle. (p. 17)

Adventure Program Review

Regarding relevant research literature, insights and background regarding experiential education was ascertained through a search of ERIC, Sport Discus, and PsychLIT data bases. The literature review focused on research articles dating from 1990 in an attempt to obtain recent, published, peer reviewed type materials. Initially, the search focused on adventure type programming aimed at adolescents with disabilities or at-risk behaviors. Ultimately, retrieved research was not limited solely to the previously described criteria and included studies with indirect connections such as related experiential education strategies, similar samples, and related outcome variables and settings.

In line with the diverse terms and interventions that are covered by the broad *experiential education* umbrella, experiential education research has been conducted under varying descriptors. Several terms used as interventions in recent research include: wilderness experience (Gillett, Thomas, Skok & McLaughlin, 1991; Sachs & Miller, 1992), adventure counseling/therapy (Fletcher & Hinkle, 2002; Gass & McPhee, 1990; Kelly, Coursey & Selby, 1997), outdoor adventure (Garst, Scheider & Baker, 2001; Hazelworth & Wilson, 1990), outdoor leadership (Propst & Koesler, 1998), and adventure education programming (Cross, 2002; Sibthorp, 2003). Further, the literature

assessment produced a review of adventure programs and their impact on at-risk youth (West & Crompton, 2001) and three meta-analyses examining the effects of adventure programs (Cason & Gillis 1994; Hans, 2000; Hattie, Marsh, Neill & Richards, 1997).

Over the years, hundreds of adventure therapy programs serving populations with special needs have been documented in the literature, yet relatively few scientific evaluations of their effectiveness have been reported (West & Crompton, 2001). Of those that have been reported, many are outcome oriented studies looking at self-esteem, self-concept, and locus of control (Sachs & Miller, 1992; Sibthorp, 2000). West and Crompton (2001) identify a renaissance of recreation type programming dating back to the late 1980s that seeks to alleviate negative youth behaviors. The reviewed studies were conducted between 1966 and 1995, numbering approximately 30. Participant age ranged from 8 to 29 with all subjects being volunteers. As such, participants were not randomly selected from a population thereby limiting generalization to a broader entity. The large majority of subjects were identified as juvenile delinquent males with additional classifications including emotionally and behaviorally disordered, underachieving, troubled, at-risk, non and pre-delinquent youth. Length of adventure programming varied from 3 days to interventions lasting approximately 14 months (West & Crompton, 2001).

The authors categorize reviewed empirical research into studies that measure recidivism rates of juvenile delinquents (14 total), and studies that look at psychological benefits of adventure program on self-concept (16). Of the 14 studies evaluating recidivism rates, eight reported reduced recidivism in their treatment groups and 14 of 16 studies measuring self-concept indicated significant positive change. Although the

authors suggest the reviewed studies add to the general perception that adventure programs contribute to the alleviation of negative youth behaviors they further assert that this support is tentative. That is, multiple issues related to design, internal validity, variable definition, and non a priori hypothesis development led to suspect evaluations (West & Crompton, 2001). Similarly, Sibthorp (2000) stated in a review of adventure education measurement that: “19 of the 65 studies reported problems with measurement or provided questionable or incomplete information regarding the adequacy of the chosen instrument(s)” (p. 101). While many adventure program studies looking at various variables have reported positive outcomes, research in the field has repeatedly come under attack for poor methodology and design issues (Cason & Gillis, 1994; Hattie et al., 1997). Further, Cason and Gillis (1994) observed while investigating the relationship between research design and effect size that the more stringent the study the lower the effect size.

McDonough, Blady and Hermetz (1996) in “Utilizing Experientially Based Programming in an Urban Day School/Day Treatment Setting” described working with emotionally disturbed children and youth, ages 6-21. Demographically, the majority of students (76%) were identified with conduct or oppositional disorders, 54% identified with attention deficit disorder, and the majority experiencing significant home instability represented by only 20% living with both natural parents. The study detailed a significant, experiential education intervention component, small intimate settings and classrooms, and interdisciplinary staff providing service. Twice each school year, the students and staff planned and executed a 5-day camping trip. However, beyond describing the program, no research oriented perspective was shared with the exception

of vague reference to the program being evaluated internally by staff and participants. No evaluative data was included. The perspective was purely descriptive and extremely limited.

The article titled, “Effects of an Adventure Education Program on Perceptions of Alienation and Personal Control among At-Risk Adolescents” (Cross, 2002) presented a direct association between at-risk adolescent growth and experiential/adventure education. The purpose of the study was to determine whether an intervention using rock climbing (treatment) would effect a change in students’ sense of alienation (hypothesis 1) and sense of control over their own lives (hypothesis 2). The participants numbered 34, with equal distribution amongst treatment group ($n = 17$) and control group ($n = 17$). Research design implemented was quasi-experimental with no random assignment to groups; data collected via three measurement tools were analyzed using four separate two-way analyses of variance (Cross, 2002). Research findings, as described by Cross (2002), were significant in terms of the two major hypotheses:

At-risk adolescents who participate in an outdoor intervention program will demonstrate significantly lower perceptions of alienation...as compared to their counterparts who receive no such program. In addition following treatment, the experimental group demonstrated a stronger sense of personal control than did its control group counterpart. This finding supports...At-risk adolescents who participate in an outdoor intervention program will demonstrate significantly greater perceptions of personal control...as compared to its counterparts who receive no such program. (p.253)

Where the Cross (2002) research appears extremely relevant, caution should be exercised in terms of the generalizability due to issues connected to sampling, size of groups, and perhaps more important the limited window in which participants were observed.

Adventure Program Meta-Analyses

In a meta-analysis of adventure education and Outward Bound experiences Hattie et al. (1997) documented a marked increase in the number of adventure programs and participants over the last 40 years. In 1994, 40,000 students participated in Outward Bound programs worldwide and since the 1950s many adventure based programs have been developed to provide “enriching experiences for many groups, including psychiatric patients, delinquents, and those involved in management training” (Hattie et al., 1997, p. 44).

The meta-analysis was conducted to examine the effects of adventure programs on outcome categories including self-concept, locus of control, leadership, academic, interpersonal, and adventuresomeness. The study was based on approximately 1,700 effect sizes, from 150 unique samples from 96 studies. The studies examined were conducted between the years of 1968 and 1994. Studies incorporated in the meta-analysis included school-aged participants but not school-based outdoor education programs. Average age of participants was 22 years old. The majority of participants were identified as students or managers considered “normal” with some representatives exhibiting delinquent behaviors. Beyond reporting simple effect sizes and perceived gains, the researchers acknowledged the need to examine criteria for study inclusion in the meta-analysis. Criteria for inclusion were sample size, presence of controls, methodology, and instrument quality in which a studies’ quality was rated at low, medium, and high. Nine studies were excluded from analysis based on identified low quality rating. Further, effect sizes were corrected for bias via a statistical correction method (Hattie et al., 1997).

Overall average effect size of immediate gains at the end of the programs was documented at .34 similar to the overall result (.31) reported by Cason and Gillis (1994). Moreover, short-term or immediate gains were followed by additional gains measured from the end of the programs to follow up assessments. Longer-term gains were documented at an effect size of .17. Beyond averaged gains, effect sizes varied with specific programs, outcomes, length of interventions, and age of participant. For example, of all programs aimed at school-aged students implementing shorter term adventures the mean effect was .26. Further, the most effective programs (.51) were for Australian adults involved with Outward Bound trips lasting at least 20 days and the least effective (.07) being programs for non-Australian adults and longer interventions. Details of specific results suggest that only some programs are effective and only with some outcomes (Hattie et al., 1997).

The major benefits of adventure programs reported by Hattie et al. (1997) appeared consistent across the previously described outcome categories with a theme of greatest effects related to self-concept and related subdomains. Specific subdomain effect size results were reported as “independence (.47), confidence (.33), self-efficacy (.31), self-understanding (.34), assertiveness (.42), internal locus of control (.30) similar to Hans’ (2000) effect size of .38, and decision making (.47)” (Hattie et al., 1997, p. 71). Outcomes suggest a sense of control over or regulation of the self, responsibility, or an assurance of self. Most of these effects were maintained over time. Thus, adventure programs appeared most effective at providing participants with a sense of self-regulation. Additional effect increases were reported for the outcome categories of leadership, personality, and adventuresomeness but with diminished increases over time.

The authors concluded with recommendations that include: use of dependable measures, the examination of reasonable sample sizes, clear descriptions of participants, process oriented investigations measuring the impact of instructors and interaction of major independent variables, and the use of alternative designs such as time-series, quasi or experimental designs and qualitative approaches (Hattie et al., 1997).

Experiential Education & Self-Efficacy

Several authors in the recent past have applied the self-efficacy framework to adventure education interventions as a means to better understand and evaluate their impact (Kelly, Coursey & Selby, 1997; Propst & Koesler, 1998; Sachs & Miller, 1992; Shetler, 1997; Sibthorp, 2003). Self-efficacy is a construct utilized by various disciplines in order to understand individual success and future development (Propst & Koesler, 1998). Bandura (1977) defines perceived self-efficacy as the expectation that one can successfully perform a behavior. Gredler (2001) in describing Albert Bandura's theory defines perceived self-efficacy as the "learner's belief in his or her capabilities to successfully manage situations that may include novel or unpredictable elements" (p. 330). Further, there are four identified influences that contribute to efficacy beliefs. Those influences are performance attainment or mastery experiences, vicarious experiences, verbal or social persuasion, and emotional and physiological states (Bandura, 1977; Bandura, 1995; Gredler, 2001).

Mastery experiences refer to the individual acquisition of situational, cognitive and behavioral skills and are considered the most authentic evidence about an individual's capability. Successful mastery of experience tends to raise personal efficacy

perception while repeated failures may lower judgment. Mastery experience design should not consist of easy successes as individual experience attainment needs to be attributed to skill not chance (Bandura, 1977; Gredler, 2001).

Vicarious experiences are helpful when the observer can identify with the model. Models help demonstrate effective, desirable contextual strategies and attitudes. Further, vicarious experiences can be particularly influential when individuals have little to no prior exposure to the situation. Verbal persuasion can help counter mild self-doubts while allowing the individual to measure success in terms of improvement and not perceived deficiencies. It should also be noted that verbal persuasion in and of itself can not develop high beliefs of self-efficacy absent of other influences (Bandura, 1995; Gredler, 2001).

Emotional and physiological states can also impact self-efficacy perception. That is, stress and tension can signal vulnerability to poor individual performance and alter personal efficacy. Reducing tension and negative emotional tendencies can counteract the vulnerability of poor self-efficacy perception. Ideally, the individual can learn to interpret stress signals as a need for increased effort in an attempt to maximize efficacy beliefs (Bandura, 1995; Gredler, 2001).

Sachs and Miller (1992) utilized the Bandura model while measuring the impact of wilderness experience on social interactions and expectations with behaviorally disordered adolescents. The dependent variables were operationalized as cooperative, aggressive behaviors, and conduct type problems. Sixteen participants were randomly selected from a pool of 50 students and randomly assigned to an experimental group ($n = 8$) and control group ($n = 8$). Mean age of participants was 16.01. Multiple measures

were utilized and implemented as pretest, immediate posttest, and one month follow up. The authors report significant findings or increase in cooperative behaviors by the experimental group as determined through a direct observation procedure. One month follow up analysis revealed that the experimental group was still exhibiting higher percentages of cooperative behaviors but the difference was not significant. In comparison to the control group, no significant difference was found regarding aggressive behaviors, or conduct behaviors. While there was some indication that small sample size may have affected follow up analysis through the loss of one control and two experimental participants, it was unclear what the final, actual sample was.

Propst and Koesler (1998) conducted a study applying self-efficacy to experiential education, or in this case, outdoor leadership development. Research objectives were two fold with the first focusing on the assessment of the short and long-term (one year) effects of outdoor leadership programs on self-efficacy and second, evaluating a path model of self-efficacy and continued participation in outdoor leadership activities. The initial general design was quasi-experimental with pretest, posttest, and one year follow up to evaluate long-term effects. Average age of participant was 24 and included students or potential students attending a National Outdoor Leadership School (NOLS). Major findings of the project were significant effects on both immediate and long-term self-efficacy. Where the authors report significant effects, it should be noted that research design issues were evident. That is, the researchers attempted to conduct an untreated control group approach with pretest and two posttests, but were unsuccessful. In reality, the control group was only measured once in the beginning of the study. Further, no long-term evaluation was conducted in year two of the project due to funding

issues. In short, design and internal validity concerns similarly documented by Cason and Gillis (1994), Hattie et al. (1997) and West and Crompton (2001) limit overall findings.

Kelly, Coursey and Selby (1997) hypothesized that outdoor adventure programming would lead to improved functioning in adults with serious mental illness. The five areas of improvement covered self-efficacy and self-esteem, anxiety and depression, interpersonal traits like trust and paranoia, locus of control, and other psychiatric symptoms. Research approach was quasi-experimental, control group, pretest/posttest utilizing multiple measures. Participants ranged in age from 21 to 55. The adventure intervention consisted of day-long outings (over a nine week period) with increasingly challenging activities including hiking, spelunking, canoeing, and rock climbing. Significant change occurred but not on all measures. Changes were significant and consistent for self-efficacy and self-esteem, weaker for anxiety and depression. No effect was found on locus of control and other psychiatric symptoms (Kelly, Coursey & Selby, 1997).

Hattie et al. (1997) suggests that only some programs are effective and only with some outcomes. That is, the findings gleaned from the reviewed literature have provided mixed results. The authors recommend the use of dependable measurement, the examination of reasonable sample sizes, clear descriptions of participants, process oriented investigations measuring the interaction of major independent variables, and the use of a quasi-experimental design approach (Hattie et al., 1997). The purpose of this study was to measure the impact of an adventure intervention process on male students with special needs while recognizing prior research and recommendations.

CHAPTER 3

DESIGN & METHODOLOGY

Overview

This study examined the impact of an adventure education intervention process on male “I” Team students with special needs. The adventure intervention process stage took the form of a 5-day hiking and camping trip to the mid-eastern, high desert region of Utah in March 2005 and all pre-adventure staging activities. The pre-adventure process stage consisted of the promotion, application, interviewing, and selection phase of the adventure intervention as well as pre-departure meetings to discuss logistical, conduct, equipment familiarity and other preparatory type issues. Dependent or outcome variables included perceived student self-efficacy (general and social), self-efficacy behavior based adventure education skill development, attendance, and academic achievement.

Setting

“I” Team type programming has existed for more than 30 years in the Cherry Creek School District. The first program, “I” Team Cottage receives student referrals from Cherry Creek High School. As the district has grown, new high schools have been constructed and affiliated “I” Team programs developed. Currently, there are five programs: Cottage, Manor, Ranch, Outback, and the Estate. The physical locations are all off-campus facilities ranging from .25 to four miles from the primary feeder high schools. The “I” Teams are considered self contained environments due to their

separation from other school buildings and programs within the district. Students attending the community oriented settings do so voluntarily and are enrolled based on a comprehensive decision making process including student, family, feeder building and “I” Team staff input.

Programmatically, the “I” Teams are interdisciplinary type environments consisting of eight staff members: a team leader, special education and vocational teachers, para-professionals called mini-course instructors, an office manager and a mental health consultant. Each program averages approximately 50 voluntary, special need students throughout the academic school year. Special need categories are four fold. The first, Emotional Disabled includes students with issues related to bi-polar, depression, and oppositional defiant type disorders to name several. The second is referred to as Perceptual/Communicative primarily covering learning disorder type issues. In this setting, the third category is Physical Disabled and comprises students identified with attention deficit or hyperactivity disorders. Lastly, Speech/Language is made up of students who have struggled with verbal communication to a level of impairment.

On any given day there are a multitude of intervention strategies implemented to support students, yet, each program functions as one, significant intervention for at-risk adolescents who would probably drop out of school without achieving a diploma. Within this context, there are six main components of the primary intervention. Those components are case management, vocational education, social skill development, academic instruction, mental health support and experiential/adventure education.

The “I” Team programs run on a quarterly system with each quarter lasting approximately nine weeks. For every nine week academic course the students can earn .25 of academic credit. Each student needs approximately 21 credits to graduate. Four days a week the Cottage, Manor, Outback and Estate students attend academic classes from 8 A.M. - 12:30 P.M. with all students expected to fill the afternoon timeframe with a building approved program in the form of employment, college study, vocational training, and/or volunteer service. The “I” Team Ranch holds classes from 9 A.M. - 1:30 P.M. while maintaining the same expectations as the other four programs. Each “I” Team has one designated “activity” day per week where instructors teach a single subject over the course of a quarter.

As previously mentioned, the “I” Teams have as goals for each attending student, personal growth and academic achievement thereby supporting their movement toward productive citizenship. One critical aspect to achieving these goals is students must maintain satisfactory attendance. “I” Team students who perform satisfactorily in the classroom may achieve academic credit but only if their attendance is consistent. That is, students who exceed seven absences over a nine week quarter jeopardize their ability to achieve academic credit. Accordingly, attendance is directly and indirectly connected to academic achievement. And, academic achievement is obviously critical to completing diploma requirements.

Description of Intervention

Staff, at the beginning of each school year or around the third week in August schedules experiential/adventure type trips. Once the students arrive and approximately

three to four weeks prior to each departure date, the community is informed and applicants are encouraged to participate. Staff then process the applications and conduct interviews. For this study, approximately four weeks prior to the adventure trip departure date, pre-adventure staging activities commenced after administration of the pretest. Within several days, all male students from the designated intervention group or sub-groups (Cottage, Manor, and Ranch) viewed a promotional video and other informative material in their separate but similar sites while being encouraged to participate. At that time, applications were distributed. Over the next week, trip leaders from each intervention program processed applications and conducted individual interviews with students in their buildings. Ultimately, “I” Team staff from each building had input into the final selections for students in their programs. Upon making the selection, trip leaders from each of the three intervention programs held pre-experiential/adventure meetings in their sites to discuss business type issues with adventure group students encouraging sound preparation.

In the field, a predetermined itinerary (see Table 3.1) outlining general process guidelines was followed by each of the three programs that made up the overall intervention group. Further, it is important to note that students from the three intervention programs (Cottage, $n = 10$; Manor, $n = 10$; and Ranch, $n = 9$) did not interact during any part of the process but did encounter very similar protocol regarding all aspects of the intervention down to going to the same geographical region - mid-eastern, high desert area of Utah (separate locations) during the same week in late March, 2005. Extensive communication among the six trip leaders (2 per program) and the researcher was conducted with the purpose of replicating intervention processes including

Table 3.1. *Adventure Trip Itinerary*

	<i>Morning</i>		<i>Afternoon</i>	<i>Evening</i>
Day 1	Held pre-departure meeting to set trip expectations. Departed for Utah. Distributed trip journals. Picnic type lunch at highway rest-stop.	Set up camp in Moab, UT. Prepared group dinner with all participating. Designated firewood collectors for group circle.	Convened processing group. Began with group building exercises. Defined "What is Man?" Discussed individual goal #1	Concluded Day 1 with final group building exercise. Discussed Day 2 agenda.
Day 2	Breakfast. Broke camp for Moab...Gas, last minute supplies etc...Departed for backcountry. Prior to backcountry stopped at designated archeological site for journal exercise.	Visited ranger station for backcountry permits. Students attended "Leave no Trace" video...journal exercise. Replenished water supplies. Prepared for hike.	Held group circle. Departed from trail head. Lunch on trail. Arrived at campsite, set up camp. Journal time. Cooking teams prepared meals, clean-up.	Group circle. Processed/analyzed day's activities. Discussed individual goal #2. Discussed "What is a relationship?" Concluded with final thoughts and agenda for Day 3.
Day 3	Rose for breakfast. Broke camp. Group circle. Hiked to next campsite.	Along the way...stopped to filter water, prepared lunch, journal time.	Arrived at campsite. Set up camp. Filtered water for evening. Prepared dinner, clean, journal time.	Group circle. Processed/analyzed day's activities. Discussed individual goal #3. Discussed "What is a family?" Concluded with final thoughts and agenda for Day 4.
Day 4	Rose for breakfast. Filtered water. Broke camp. Group circle. Hiked to next trailhead.	Along the way...stopped to filter water, prepared lunch, journal time.	Arrived at trailhead. Group circle. Journal/free time. Departed for campsite in Colorado. Set up camp, foraged for wood, prepared dinner, clean.	Group circle. Processed/analyzed day/week's activities. Discussed individual goal achievement or no. Discussed "What is a human?" Concluded with final thoughts and agenda for Day 5.
Day 5	Rose for breakfast. Broke camp. Group circle. Departed for Denver.	Journal time in bus. Lunch stopped in Idaho Springs. More journal time in bus.	Arrived back at school. Journals were collected before departing bus. Bus cleaned out by students.	Equipment was placed back in storage area...sleeping bags and tents aired out etc...Goodbyes.

all pre-adventure and adventure activities as well as trip theme, academic journals, and response to disciplinary type issues in the field.

In terms of the Utah adventure trip the general theme was men's issues but also included academic components related to culture, history, and the environment. Participants also completed daily journal work (both factual and reflective type assignments) as well as attended processing, reflection and analysis group meetings facilitated by the trip leaders (Proudman, 1992). Individuals who successfully completed trip expectations achieved credit. Students displaying unsatisfactory participation received no credit for the trip. A more detailed intervention description can be found in Appendix H.

Design

The research design was quasi-experimental with a pretest, posttest 1, and the posttest 2 questionnaire administered approximately 10 days after concluding the adventure intervention process. Participants assigned to the intervention group were selected from the Cottage, Manor, and Ranch "I" Teams. Control group participants came from the comparable sister programs Outback and Estate. A major assumption associated with the study and design was that the students attending all five of the "I" Team programs encountered very similar previously described programmatic constructs as their sister team counterparts, including interdisciplinary, team environments consisting of a program leader, special education and vocational teachers, para-professionals called mini-course instructors, an office manager, and a mental health consultant. One exception being the "I" Team Ranch operated on a daily block schedule

with three 90 minute classes and the other four programs conducting five 50 minute sessions through the day.

Additional programmatic consistencies were the six main components of the primary, program intervention. Those components were case management, vocational education, academic instruction, social skill development, mental health support, and experiential/adventure education. Each of the five programs functioned as one, significant intervention for special needs adolescents; individuals who would probably drop out of school without achieving a diploma. All programs had essentially two goals for the students: personal growth and academic achievement. Consistent attendance, in all programs, was directly and indirectly connected to academic achievement. And, academic achievement was obviously critical to completing diploma requirements.

The basis for the design selection was found in the research problem, research questions, recent research literature, and methodology text materials supporting the approach as well as the variables being studied. The study had two independent variables (IV). The first IV has two stages identified as the pre-adventure stage, and the adventure intervention stage. The two identified stages combine to make up the entire adventure intervention process. The first independent variable was considered active. An active independent variable is described as a variable such as a new curriculum, a workshop, or an intervention, in which one level is given to one designated group but not to others. The active independent variable differs from an attribute independent variable because the latter cannot be given to some and not others because the values are attributes of the person such as gender, age, ethnicity (Gliner & Morgan, 2000). The second IV was regarded as change over time. The first IV had two nominal levels represented by

adventure intervention process versus no adventure intervention process. The second IV had three nominal levels identified as pretest, posttest 1, and posttest 2.

There were four dependent variable measures. The first was represented by The Self-Efficacy Scale - SES (Appendix A) developed by Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs and Rogers (1982) and Sherer and Adams (1983). The SES is a standardized measure with two subscales (general self-efficacy - GSE; and social self-efficacy - SSE) totaling 23 self report questions with Likert scale responses. The second measure was a self-efficacy behavior based skill development checklist adapted from Sachs & Miller (1992) and was implemented in the field during the adventure intervention stage. Next, attendance records for the second (November 1, 2004 – January 14, 2005) and third quarters (January 18, 2005 – March 25, 2005) were examined. Lastly, academic achievement records also for the second quarter (November 1 – January 14) and third quarter (January 18 – March 25) of the 2004-2005 academic school year were utilized.

Quantitative research approaches are divided into three general categories: experimental, individual differences, and descriptive. The descriptive approach has no independent variable and is primarily suited to summarize data; individual differences type approaches are identified by the presence of attribute independent variables; and the experimental approach has an active independent variable. Two specific designs that fall under the experimental category are randomized experimental and quasi-experimental. Randomized experimental is represented by two essential criteria; first, the independent variable needs to be active, and secondly, the investigator must randomly assign participants to groups or conditions. The quasi-experimental approach has two main

elements; no random assignment but an active independent variable (Gliner & Morgan, 2000).

This study examined the impact of experiential/adventure intervention process on male students primarily identified with special needs. The environment did not allow for random assignment to groups or random assignment of intervention to intact groups primarily due to safety factors. That is, not all enrolled students were necessarily suitable, based on severity of disability, for adventure intervention trips. Accordingly, the study approach was a nonequivalent comparison group, quasi-experimental, pretest, posttest 1, and posttest 2 design (see Table 3.2).

Table 3.2. *Summary of Specific Design for Quasi-Experimental*

<i>Type of Design</i>	<i>Assign.</i>	<i>Group</i>	<i>Pretest</i>	<i>I.V.</i>	<i>Posttest 1</i>	<i>I.V.</i>	<i>Posttest 2</i>
Pretest-posttests nonequivalent comparison group design	NR	E	O	X	O	X	O
	NR	C	O	~X	O	~X	O

Note: Assign. = assignment of subjects to groups (NR = nonrandom); Group = group or condition (E = experimental, C = control or comparison); Pre = pretest (O = an observation or measure); I.V. = active independent variable (X = intervention, ~X = control or comparison treatment); Post = posttest (O = a posttest observation or measure).

Nonequivalent comparison group, quasi-experimental approaches are considered weak, moderate, or strong. The primary distinction of the weak approach is that the participants volunteer or self select into either the intervention or control groups. The strong design is different from the other two, based on the researcher having more control of the independent variable by randomly assigning intervention or no intervention to intact groups. Moderate quasi-experimental approaches are best described as having no

control of the active independent variable in terms of random assignment of the treatment, but the researcher selects similar, already intact groups (such as classes or programs) for the intervention and control groups (Gliner & Morgan, 2000). The “I” Team environment did not allow for random assignment of the intervention to groups and, therefore, the study was not considered strong, quasi-experimental. Where “I” Team participants from the intervention group expressed initial interest (or not) in the adventure trip they did not self select to the intervention group. Those who did not apply were not included in the comparison group. To reiterate, students from the three of the five “I” Teams expressed interest, applied, and interviewed; the individual teams then determined eligibility and ultimately participation for students in their buildings. Not all who applied participated. For this reason the designated approach for this study was considered moderate.

Gliner and Morgan (2000) state that internal validity “depends on the strength...of the design and influences whether one can conclude that the independent variable...caused the dependent variable to change” (p. 83). They group threats to internal validity into two broad categories; first, equivalence of groups on participation characteristics and secondly, control of extraneous or environmental variables. Further, threats to participant characteristics are broken down into considerations of statistical regression, experimental mortality, selection, and interactions with participant assignments (Gliner & Morgan, 2000).

For this particular study, internal validity was considered seriously, especially regarding selection and experimental mortality issues. Mortality issues in terms of students dropping out of the study were addressed by the inclusion of as many

participants as programmatic protocol allowed; the development of a strong study protocol, and the effective use of “I” Team gatekeepers within the specific programs that encouraged research participant commitment. Regarding selection bias and equivalency of groups several comments are necessary. First, have individuals participated on other experiential type trips earlier in the year? Second, are the participants that make up the intervention and control groups largely dissimilar? As such, selected sample participant records were evaluated to equate similarities or dissimilarities. Specifically, school records were examined to determine average participant age, ethnicity, special need, and the number of overnight, experiential trips taken during the 2004 - 2005 academic year.

Recognizing that the intervention data collection process was confined to a period of approximately six weeks, threats such as maturation, historical events, and instrumentation were negligible. To address inherent biases related to self report measures such as Hawthorne effect, social desirability, and post group euphoria, steps were taken to control for these factors (Sibthorp, 2003). Examples included the development and implementation of a structured and stringent research protocol that reduced bias connected to prior established relationship between researcher and participants, and the use of standardized measures that take into consideration repeated measures and social desirability type responses. Overall, internal validity was deemed to be medium for both dimensional threats based on significant attempts to control and address group equivalency issues.

Participants

The theoretical or target population for this study was all public education, high school age, male students (16-21) primarily identified with special needs in the United States. The accessible sample consisted of approximately 157 male students attending the five “I” Team programs (Cottage, Manor, Ranch, Outback, and Estate) in the Cherry Creek Public School District. The selected sample ($n = 147$) was all consenting male students from the Cottage ($n = 22$), Manor ($n = 25$), Ranch ($n = 34$), Outback ($n = 30$), and the Estate ($n = 36$) or approximately 94% of the accessible population. This study initially collected data from a total of 123 male students as an actual, overall sample number or 84% of consent giving students. Of the $n = 123$, 54 students were included in the no adventure group, 29 for the adventure group, and 40 fell into the unselected group.

As previously stated, potential trip participants from three of the five “I” Teams expressed interest, applied, and interviewed; the staff teams then determined eligibility and ultimately participation for students in their buildings. Not all who applied were selected or participated. This unselected category consisted of students who were not identified by “I” Team staff as appropriate candidates for the adventure trip. Thus, this study utilized data from a total of 83 male students as 40 male students fell into the unselected category. As such, the unselected students were not included thereafter. The studied sample ($n = 83$) consisted of 29 students in the adventure group and 54 participants making up the no adventure group.

Beyond the general group breakdown, all three groups (unselected, adventure, and no adventure) were compared for significant differences by ethnicity, special need, age, and prior experiential trip days. Chi-square tests were utilized for ethnicity ($\chi^2 = 5.19$, df

= 6, $n = 123$, $p = .520$), special need ($\chi^2 = 2.68$, $df = 6$, $n = 123$, $p = .848$), age ($\chi^2 = 6.82$, $df = 8$, $n = 123$, $p = .556$), and previous trip day ($\chi^2 = 13.26$, $df = 12$, $n = 123$, $p = .350$) comparisons. Results (see Table 3.3) from the comparisons indicated no significant differences between the three groups on ethnicity, special needs, age, and previous trip days suggesting that the unselected group was very similar and not greatly different than the adventure and no adventure groups. Similarly, pre-general self-efficacy (GSE) and pre-social self-efficacy (SSE) scores were compared for differences among the three groups using one-way ANOVA's. Outcomes for the analyses indicated no significant differences with the exception of the pre-general self-efficacy data among groups ($F(2, 118) = 3.80$, $p < .05$). A least-significant difference (LSD) post hoc test indicated that the unselected group was different from both the adventure and no adventure groups for pre-GSE. Table 3.3 suggests similarities between groups at the pretest phase of the study with the exception of pre-GSE data.

In terms of the studied sample ($n = 83$), students age 17 made up the largest number at approximately 37%, followed by 18 year olds (24%), age 16 (22%), and 19 and 20 year olds (17%). Regarding ethnicity, the majority (61%) identified as Caucasian. Approximately 19% were Latino, 18% were African American, and approximately 2% were Asian American. Special need categories were Emotional Disabled (44%), Perceptual/Communicative (37%), Physical Disability, made up of primarily attention deficit or hyperactivity type issues, was 12%, and Speech/Language was about 7%.

Table 3.3. *Comparisons of Groups on Ethnicity, Special Need, Age, Trip Days, and Pre-Self-Efficacy by Research Group (n=40 unselected group, n=29 adventure group, and n=54 no adventure group)*

	<i>Unselected</i>	<i>Adventure Group</i>	<i>No Adventure Group</i>
Ethnicity ^a			
Caucasian	70%	65%	57%
Latino	10%	21%	17%
African-American	20%	14%	22%
Asian	0%	0%	4%
Special Need ^b			
Emotional Dis.	45%	42%	46%
Perceptual/Com.	45%	41%	33%
Physical Disabled	7%	10%	13%
Speech/Language	3%	7%	8%
Age (years) ^c	17.50	17.28	17.48
Previous Trips (days) ^d	.58	.93	.74
Pre General-Self Efficacy ^{e*}	3.54	3.84	3.83
Pre Social-Self Efficacy ^e	3.48	3.70	3.65

^a $\chi^2 = 5.19$, $df=6$, $n = 123$, $p = .520$ (Ethnicity). ^b $\chi^2 = 2.68$, $df=6$, $n = 123$, $p = .848$ (Spec. Need).

^c $\chi^2 = 6.82$, $df=8$, $n = 123$, $p = .556$ (Age). ^d $\chi^2 = 13.26$, $df=12$, $n = 123$, $p = .350$ (Previous Trips).

^e $n=40$ unselected group, $n=29$ adventure group, and $n=52$ no adventure group.

Note: * symbol indicates significant difference was found for pre-GSE among groups.

Regarding research groups, the adventure group mean age was 17.28 while the no adventure group averaged 17.48 years of age. Ethnicity and special need percentages by research group are described in Figure 3.1 documenting a similar distribution to the

overall group. The adventure group averaged .93 prior experiential trip days over the review period while the no adventure students took .74 days on average.

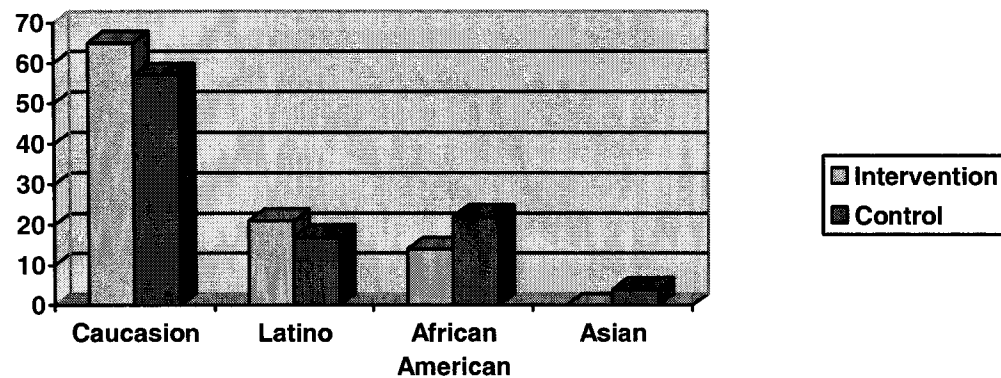


Figure 3.1. Student ethnicity percentages by research group ($n=29$ entire adventure process and $n=54$ for no adventure process).

All consenting, male students were asked to participate in the pretest portion of the design. Actual sample numbers varied depending on Self-Efficacy Scale (SES) data collection point (pretest, posttest 1 or posttest 2) and attendance/credits records over the second and third academic quarters. This fluctuation was anticipated due to the voluntary attendance nature of the study environment. Accordingly, 29 students were included in the intervention group for all data collection points with the exception of the SES posttest 2 in which 28 participated. The control group consisted of $n = 38$ (pretest), $n = 33$ (posttest 1) and $n = 41$ (posttest 2). Attendance and credit variable participants numbered $n = 29$ (intervention) and $n = 54$ (control). Participants observed through the self-efficacy behavioral checklist totaled $n = 29$.

As stated, the identified study environment did not lend itself to random assignment to groups, or random assignment of treatment to intact groups, and did not

allow for a random sampling design or probability type sampling. Thus, the sampling design was a nonprobability, convenience process. It was considered a convenience type sample based on the fact that study participants were identified through an accessible school district and selected through the researcher's place of employment. Intact groups ("I" Team programs) were identified and aligned into intervention and control groups due to perceived similarities founded on prior knowledge of the researcher. The selection and alignment of the intact groups was carried out with the hope of addressing the issue of similarity of groups while also attempting to obtain a representative sample. It is also important to note that no student self-selected or volunteered into either the intervention or control groups. That is, students could not choose to be in the control group or intervention group; that was determined by their "I" Team affiliation.

Where it is said that most published studies in the social science and education rely on nonprobability sampling (based on economy and convenience) it is equally important to include that this type of sampling design is not the best way to describe or generalize to entire populations. Also, most social science and education research is not necessarily interested in describing whole populations suggesting that being able to identify key factors that may influence the dependent variable is the primary aim (Gliner & Morgan, 2000). This study followed in the same vein.

External validity relates to the issue of generalizability, that is, to what other settings, populations, interventions, and measurement variables, may the treatment be extrapolated. External validity has two main aspects, population and ecological. The former is concerned with the representative sampling (or not) in relationship to the theoretical populations. And ecological external validity relates to conditions, settings,

times, testers, and procedures that are representative of real life situations and, thus, results can be generalized to real life outcomes (Gliner & Morgan, 2000). For this study, population external validity was considered medium based on the attempt to obtain a good sample representative to the accessible population. Ecological external validity was medium to high due to the consideration of all five rating categories such as naturalness of conditions, use of site based gatekeepers, previous experiential intervention exposure and use of questionnaires.

Procedures

Experiential/adventure intervention trips are scheduled by “I” Team staff at the beginning of each school year in order to discuss logistical issues such as availability of shared transportation and other resources and to set the experiential activity calendar. For this study, approximately four weeks prior to the adventure trip departure date, pre-adventure activities commenced after administration of the pretest. Within several days, all male students from the designated intervention group or sub-groups (Cottage, Manor, and Ranch) viewed a promotional video and other informative material while being encouraged to participate. At that time applications (Appendix B) were distributed. Over the next week, trip leaders from the intervention programs processed applications and conducted individual interviews with students in their buildings. Ultimately, “I” Team staff from each building had input into the final selections for students in their programs. Selection criteria included emotional stability, physical ability, presence within the community (reward for positive behavior as well as potential to provide boost to struggling members), and contribution to group dynamic. Based on limited staffing and

transportation type resources of the programs as well as individual student's ability to schedule time away from work or pay trip fees, 10 slots per "I" Team were available for trip.

Upon making the selection, trip leaders from each intervention program held additional pre-adventure meetings (focus element of Joplin's experiential process model) to discuss business type issues with the adventure students while encouraging sound preparation. In the field, a predetermined itinerary was followed but varies somewhat depending on the theme of the trip. In terms of the Utah adventure trip, the general theme was defining and understanding male specific issues but also included learning about the natural environment, cultural and physical exploration as well as the achievement of academic credit. Activities included visiting pre-historic archeological sites, environmental education sessions, and moderate to strenuous backpacking. Participants also completed daily journal work (both factual and reflective type assignments) as well as attended evening processing, reflection and analysis group meetings facilitated by the trip leaders (Proudman, 1992).

Data Collection

This study initially collected data from a total of 123 male students as an actual, overall sample number or 84% of consent giving students. As previously stated, potential trip participants from the three of the five "I" Teams expressed interest, applied, and interviewed; the teams then determined eligibility and ultimately participation. Not all who applied participated. This unselected category consisted of students who were not identified by "I" Team staff as appropriate candidates for the adventure trip. This study

utilized data from a total of 83 male students as 40 male students fell into the unselected category. As such, the unselected students were not included thereafter.

The pretest was conducted (before any pre-adventure staging activities) February 23 - 25, 2005. The Utah experiential/adventure education trip took place March 21 - 25, 2005. Specifically, the Cottage and Manor questionnaire was conducted mid-day Wednesday (2 - 23 - 05) in order to maximize participation with the Outback and Ranch questionnaire implemented the same time of day on the adjacent Thursday (2 - 24 - 05) and the Estate on Friday (2 - 25 - 05). Participant interviews at the Cottage, Manor, and Ranch were conducted February 28 - March 4, 2005 with selection notification coming during March 7 - 11. Posttest 1 was conducted March 14 - 18. The Cottage, Manor and Ranch posttest 2 took place Tuesday April 4 and Outback and Estate on Wednesday April 5, 2005 (see Appendix C). Team leaders (gatekeepers) from the five programs were requested to introduce the research as well as the researcher. In an attempt to further reduce bias, a written, pre-constructed statement (Appendix D) was read to all participants prior to measure administration regarding reasons for study, their genuine involvement, and importance to future "I" Team students as well as instructions for questionnaire. Additionally, the field researcher was the only individual to collect and examine completed questionnaires.

The self-efficacy behavior based skill development checklist (Appendix E) was completed in the field by designated trip leaders from the Cottage, Manor, and Ranch. Specifically, the three designated leaders (one for each intervention group) were thoroughly briefed and instructed as to the protocol for completing the skill checklist. Further, the three leaders had significant experience in working with special need

students, observation, assessment, and evaluation. Professionally, the leaders included a Ph. D level, special education teacher with 20 + years of experiential instruction; a Masters level special education teacher and previous team leader with approximately 12 years experience; and the researcher for this study. Each student participating in the adventure intervention stage was evaluated throughout the trip and percentages tallied upon completion. Attendance and academic achievement records were collected and examined by the researcher in April and May 2005.

It should be noted that no data was collected without participant and/or parent consent (Appendix F). Anonymity and confidentiality were strictly observed. At the beginning of the third academic quarter (January 18, 2005) the consent to participate in research process commenced. This was initiated through each male student's case manager making contact and securing written consent from students over 18 and parents of minors, ages 16 -17. Program case managers were fully briefed regarding the nature of study as well as provided a script/outline (see Appendix G) that follows Appendix F thereby describing the project and securing consent. No student was included who did not have or give written consent. All consenting, male students were brought together by each program team leader (in their home schools) to an appropriate size classroom or classrooms to take the pretest, posttest 1, and posttest 2. Team leaders (gatekeepers) from the five programs introduced the researcher. The study script/outline (Appendix G) was utilized in further describing the project purpose and student participation. In an attempt to reduce bias, a written, pre-constructed statement (Appendix D) was read (by researcher) to all participants prior to measurement administrations emphasizing questionnaire purpose while also providing instructions for the questionnaire.

Measures

Measurement reliability and validity are key aspects to any reputable quantitative study. Measurement reliability seeks to address the issue of systemic variation and unsystematic variation. That is, how much of a participant's score is due to true variation resulting from the intervention and how much is due to undesirable factors or error. This issue is addressed by selecting an instrument with high reliability as expressed by the reliability or correlation coefficient. Correlation coefficients range from -1 to +1 with zero meaning no relationship between the two scores. To claim an instrument has acceptable reliability, the coefficient should fall between + .7 and + 1 (Morgan & Gliner, 2000) or at least + .6 for basic research purposes (Nunnally, 1978; Sherer et al., 1982). The higher the instrument reliability, the closer observed scores will be to true scores. Methods for assessing reliability include test-retest, parallel forms, internal consistency, and interrater. Regarding measurement validity, it is often said, correctly so, that an instrument may be highly reliable, but not necessarily valid. The evaluation of measurement validity is concerned with establishing evidence that a particular instrument is appropriate for a particular environment. Methods for establishing measurement validity are face, content, criterion, and construct validities (Gliner & Morgan, 2000).

The Self-Efficacy Scale (SES) developed by Sherer et al., 1982, Sherer and Adams (1983) was used in this particular study. The SES was constructed to assess generalized expectations of self-efficacy. The developers described the scales (general self -efficacy - GSE and social self -efficacy - SSE) as measuring respondent's willingness to initiate behaviors, expend energy in completing a behavior, and persist in the face of adversity. Prior to analysis, descriptive or inferential, the SES made up of the

general and social sub-scales was assessed for reliability. Internal consistency reliability was evaluated using the Cronbach alpha. Reliability analysis for this study produced Cronbach alphas of .87 (GSE) and .63 (SSE), which are similar to Cronbach alphas of .86 and .71 obtained for the GSE and SSE subscales by the developers, Sherer et al., (1982). Since the SES was validated on late adolescents and had also been used with early adolescents (Ehrenberg, Cox & Koopman, 1991; Shetler, 1997) and young adults (Kelly, Coursey & Selby, 1997) in past research, confidence to proceed in this study was secured.

Criterion and construct validity were presented and established based on confirmation of several predicted, conceptual relationships (Sherer et al., 1982; Sherer & Adams, 1983). The 23 item measure has five interval levels ranging from 1 = Strongly Disagree to 5 = Strongly Agree with a range of possible scores from 23 to 115. Fourteen of the original 23 questions were reverse type questions. Accordingly, some of the responses were summed while other items were reversed and summed. For this study, four of the 14 reversed questions were adjusted prior to administration to a positive directional reading in order to reduce confusion of the participant. A larger score suggests a higher prevalence of self-efficacy.

As stated, there are four identified influences that contribute to efficacy beliefs (performance attainment or mastery experiences, vicarious experiences, verbal or social persuasion, and emotional and physiological states). Sachs and Miller (1992, p. 93) utilized these influences and the “efficacy expectation source and mode of induction” model developed by Bandura (1977) and modified it for wilderness activities. This study adapted (see Table 3.4) and utilized the Sachs and Miller model for the purposes of

developing an in field, self-efficacy behavior based adventure education skill development checklist found in Appendix E. The checklist was intended to obtain descriptive data pertaining to the acquisition of self-efficacy behavior based adventure education skills connected with the adventure intervention stage of the study.

Table 3.4. *The Relationship Between Self-Efficacy and Adventure Intervention Process* (Adapted from Sachs and Miller, 1992)

<i>Sources of Self-Efficacy</i>	<i>Mode of Induction</i>	<i>Adventure Activities</i>
Mastery Experiences or Performance Accomplishments	Participant Modeling & Performance Exposure	Performs tent and camp set up tasks. Gives effort in hiking experience. Performs water filtering task. Performs cook stove set up task. Prepares meals when designated. Cleans up when designated.
Vicarious Experience	Live Modeling	Participates as team member in cooking group. Participates as team member in larger group. Models equipment set up to others less familiar and/or comfortable with experience. Displays positive team attitude.
Verbal or Social Persuasion	Suggestion...Exhortation	Verbally encourages others who may be struggling. Shows empathy towards others in group. Offers suggestions in situations rather than complain.
Physiological and Emotional States	Relaxation	Participates and is respectful in group circles. Participates in group processing activities. Participates in group trust building exercises.

Upon the completion of data collection connected with the SES and field checklist, academic achievement and attendance records were examined by the researcher exclusively. Specifically, records were evaluated for differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to male academic achievement and attendance. Attendance records for the second (November 1, 2004 – January 14, 2005) and third quarters (January 18, 2005 – March 25, 2005) were examined. Lastly, academic achievement records also for the second quarter (November 1 – January 14) and third quarter (January 18 – March 25) of the 2004-2005 academic school year were utilized.

Design/Analysis

The study had two independent variables (IV). The first IV had two stages identified as the pre-adventure stage, and the adventure intervention stage. The two identified stages combine to make up the entire adventure intervention process. The entire adventure intervention process independent variable was considered active. The second IV was simply regarded as change over time. An active independent variable is described as a variable such as a new curriculum, a workshop, or perhaps an intervention, in which one level is given to one designated group but not to others. The variables dictate a general design classification identified as mixed, suggesting a combination of the within subjects and between group designs. The general design classification of this study was a 2 x 3 mixed factorial design with repeated measures on the last factor. Further, it was a moderate strength, quasi-experimental, pretest-posttests non-equivalent control group design.

Understanding the appropriate general design classification is critical to the selection of the suitable inferential statistic. There are three different methods used in the analysis of mixed, pretest-posttest design type studies. Those are mixed analysis of variance (ANOVA), the gain score approach, and analysis of covariance (ANCOVA). The ANCOVA is best utilized when participants are randomly assigned to groups or with randomized experimental designs. The mixed ANOVA is recommended when the within subjects independent variable has more than two levels and the gain score approach is best implemented with two levels, within subject, independent variable, when participants are in intact groups (Gliner & Morgan, 2000).

For this study, the within subjects independent variable or the entire intervention process had three levels but was examined in terms of pretest to posttest 1, and pretest to posttest 2. Accordingly, the gain score approach was utilized. The gain score approach to analysis is considered a simpler method than the mixed ANOVA when working with pretest-posttest design. The gain score approach for this study converted the mixed design into a single factor design. To begin, pretest scores were subtracted from posttest scores for each study participant. The dependent variable scores were then transformed from the designated measurement scale to average gain scores which were the differences from pretest to posttest. At that stage, an independent *t*-test or a single factor ANOVA could be used when the IV has two or more levels (Gliner & Morgan, 2000). Since the IV had only two levels the independent *t*-test was implemented. Quantitative data collected over the course of the 2 x 3 mixed design was analyzed through implementation of two gain score *t*-tests.

Once again, the research questions were developed based on statement of problem, literature review, and the necessity to examine current intervention strategies for male adolescent students with special needs. They are as follows.

1. Are there differences between the gains of the two levels of pre-adventure process (pre-adventure staging versus no pre-adventure staging) of the experiential/adventure intervention on perceptions of self-efficacy?
2. Are there differences between the gains of the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to perceptions of self-efficacy?
3. Are there differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to academic achievement?
4. Are there differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to attendance?
5. What percentage of “I” Team students participating in the adventure intervention stage exhibit self-efficacy behavior based adventure education skill development?

Summary

The impact upon human subjects, or students from the “I” Team programs was minimal. All students who participated were involved in the same activities for the trip with the exception of completing the questionnaire lasting approximately 15 minutes each for 3 sessions implemented in their home schools. Similarly, the control group participants were asked to do the same. Benefits of participation included pride in helping the community, and potential for improving future scheduling. Further, the study’s principal investigator (PI) will store consent forms and data in a locked cabinet for three years and no one except researchers and raters saw data sheets. Procedural protocol was meticulously developed and followed in order to maximize research design intent. Regarding ethics and research, the statement *do no further harm* appeared to be fulfilled.

Sampling and group equivalency issues (thought to be pre-study limitations) did not materialize in a significant manner. That is, sampling numbers remained relatively consistent throughout the study and equivalency issues were slightly problematic on only two dependent variables; credit and attendance. Thus, the group selection process did not negatively impact study credibility. Researcher bias, as it pertained to intimate familiarity with one piece of the intervention group and vague knowledge of the remaining participants was not problematic. Overall, strengths supporting the study outnumbered drawbacks. Beyond the stated points of study significance, this project provided valuable information for the continued support of future, alternative/experiential education type programming.

CHAPTER 4

RESULTS

Introduction

This study examined the impact of an adventure education intervention process on male “I” Team students with special needs. The adventure intervention process stage took the form of a 5-day hiking and camping trip to the mid-eastern, high desert region of Utah in March 2005 and all pre-adventure staging activities. The pre-adventure process stage consisted of the promotion, application, interview, and selection phase of the adventure intervention as well as pre-departure meetings to discuss logistical, conduct, equipment familiarity and other preparatory type issues. Dependent or outcome variables included perceived student self-efficacy (both general and social), self-efficacy behavior based adventure education skill development, school attendance, and academic achievement.

The study had two independent variables (IV). The first IV, adventure intervention had two stages identified as the pre-adventure stage and the adventure intervention stage. The two identified stages combine to make up the entire adventure intervention process. The adventure intervention process independent variable was considered active. The second IV, is change over time. The variables dictated a general design classification identified as mixed, suggesting a combination of the within subjects and between group designs. The general design classification of this study was a 2 x 3 mixed factorial design with repeated measures on the last factor. Further, it was a

moderate strength, quasi-experimental, pretest-posttests non-equivalent control group design.

The gain score approach was utilized for primary data analysis. This approach was used since it is generally considered a simpler method of analysis than the mixed ANOVA when working with pretest-posttest design. In fact, the gain score approach converts the mixed design into a single factor design. For this study, pretest scores were subtracted from posttest scores for each study participant. The dependent variable scores were then average gain scores which were the differences from pretest to posttest. At that stage, an independent *t*-test or a single factor ANOVA could be used when the IV has two or more levels. Since the IV had only two levels, the independent *t*-test was implemented. Quantitative data collected over the course of the 2 x 3 mixed design was analyzed through implementation of two gain score *t*-tests.

Prior to analysis, descriptive or inferential, the Self-Efficacy Scale (SES) made up of the general and social sub-scales was assessed for reliability. Internal consistency reliability was evaluated using the Cronbach alpha. Reliability analysis for this study produced Cronbach alphas of .87 (GSE) and .63 (SSE), which are similar to Cronbach alphas of .86 and .71 obtained for the GSE and SSE subscales by the developers, Sherer et al., (1982). Since the SES was validated on late adolescents and had also been used with early adolescents (Ehrenberg, Cox & Koopman, 1991; Shetler, 1997) and young adults (Kelly, Coursey & Selby, 1997) in past research, confidence to proceed in this study was secured.

The results section of this study begins, first, with the reporting of general demographic, descriptive, and group comparison type information followed by findings

related to specific research questions outlined in previous chapters. Included in the result reporting is effect size (d) and confidence interval information. Effect size is defined by Morgan, Leech, Gloeckner, and Barrett (2004) as the “strength of the relationship between the independent variable and the dependent variable” (p.89) that adds insights of practical significance to statistical significance. Cohen’s (1988) rough guidelines of $d = .2$ (small effect), $d = .5$ (medium), and $d = .8$ (large effect) were used for interpreting d values but were applied with the caveat that professional literature guidelines can be more relevant than arbitrary d values. Confidence intervals tell us that if a study was repeated 100 times, in 95 of those instances, the true difference would fall within the stated confidence interval. The confidence interval that holds the population mean difference 95% of the time may also provide practical or functional perspective beyond simple statistical significance (Morgan et al., 2004). An alpha level of $p = < .05$ was applied to all research questions with the exception of research question five which was solely descriptive.

Sample Demographics

The accessible sample consisted of approximately 157 male students attending the five “I” Team programs (Cottage, Manor, Ranch, Outback, and Estate) in the Cherry Creek Public School District. The selected sample ($n = 147$) was all consenting male students from the Cottage ($n = 22$), Manor ($n = 25$), Ranch ($n = 34$), Outback ($n = 30$), and the Estate ($n = 36$) or approximately 94% of the accessible population. This study initially collected data from a total of 123 male students as an actual, overall sample number or 84% of consent giving students (see Table 4.1).

As previously stated, potential trip participants from three (Cottage, Manor, and Ranch) of the five “I” Teams expressed interest, applied, and interviewed; the staff teams then determined eligibility and ultimately participation. Not all who applied were selected or participated. This unselected category consisted of students who were not identified by “I” Team staff as appropriate candidates for the adventure trip. This study utilized data from a total of 83 male students as 40 male students fell into the unselected category. As such, the unselected students were not included thereafter. The adventure group numbered 29 participants and the no adventure group had 54 male students. Once again, participant numbers varied from pretest through posttest 2 due to the voluntary nature of all “I” Team programs.

Table 4.1. *Study Sample Numbers*

	<i>Sample</i>	<i>Adventure Group</i>	<i>No Adventure Group</i>
Accessible sample	157		
Selected sample	147		
Actual sample	123		
Studied sample	83		
Unselected	40		
Pretest ^a		29	54
Posttest 1		29	38
Posttest 2		28	41
Self-efficacy adventure checklist		29	N/A

^aThe sample numbers identified for pretest ($n=29$ adventure group and $n=54$ no adventure group) were also used on research questions three (academic achievement) and four (attendance).

In addition to sample demographics, Table 4.2 outlines percentages for both ethnicity identification and special need classification by research group that were similar to the overall or actual sample. Beyond the stated sample demographic findings, both research groups were also compared for significant differences by ethnicity, special need, age, and prior experiential trip days. Chi-square tests were utilized for ethnicity ($\chi^2 = 2.14$, $df = 3$, $n = 83$, $p = .543$) and special need ($\chi^2 = .55$, $df = 3$, $n = 83$, $p = .907$) comparisons. Results (see Table 4.2) from the comparisons indicated no significant differences between the adventure group and the no adventure group on ethnicity or special needs.

Table 4.2. *Percentages of Ethnicity and Special Need by Research Group* ($n=29$ entire adventure group and $n=54$ no adventure group)

	<i>Adventure Group</i>	<i>Non Adventure Group</i>
Ethnicity ^a		
Caucasian	65%	57%
Latino	21%	17%
African-American	14%	22%
Asian	0%	4%
Special Need ^b		
Emotional Disabled	42%	46%
Perceptual/Communicative	41%	33%
Physical Disabled	10%	13%
Speech/Language	7%	8%

^a $\chi^2 = 2.14$, $df = 3$, $n = 83$, $p = .543$ (Ethnicity).

^b $\chi^2 = .55$, $df = 3$, $n = 83$, $p = .907$ (Special Need).

As seen in Table 4.3, *t*-tests were implemented to compare age and prior trip days by research group. Results for age comparison was $t(81) = -.86, p = .392$ while findings for prior trip experience was $t(81) = .50, p = .618$. In sum, no significant differences were found for any of the comparisons further suggesting similarities among groups.

Table 4.3. *Comparison of Research Groups by Age and Prior Experiential Trips (n=29 adventure group and n=54 no adventure group)*

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Age			-.86	81	.392
Adventure group	17.28	1.10			
No adventure Group	17.48	1.00			
Prior experiential trip days			.50	81	.618
Adventure group	.93	1.91			
No adventure group	.74	1.49			

Research Question One

Are there differences between the gains of the two levels of pre-adventure process (pre-adventure group versus no pre-adventure group) of the experiential/adventure intervention on male perceptions of self-efficacy?

As seen in Table 4.4, there was a statistically significant difference in general self-efficacy between male students experiencing the pre-adventure process and their no pre-adventure counterparts. Effect size was $d = .5$ suggesting a medium effect.

Regarding social self-efficacy, male students experiencing the pre-adventure process did not differ significantly from their no pre-adventure counterparts $t(65) = -.01, p = .994$.

Table 4.4. *Comparison of Gains of the Two Levels of Pre-Adventure Process of the Experiential/Adventure Intervention on Perceptions of Self-Efficacy* ($n=29$ pre-adventure group and $n=38$ no pre-adventure group)

Variable	<i>Pre M</i>	<i>Post1 M</i>	<i>Gain M</i>	<i>Gain SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
General self-efficacy					2.04	65	.046
Pre-adventure group	3.84	3.94	.10	.41			
No pre-adventure group	3.88	3.77	-.11	.41			
Social self-efficacy					-.01	65	.994
Pre-adventure group	3.70	3.75	.05	.39			
No pre-adventure group	3.61	3.66	.05	.55			

Note: 5-point Likert Scale 1=Strongly Disagree to 5=Strongly Agree.

Research Question Two

Are there differences between the gains of the two levels of the entire adventure intervention process (adventure group versus no adventure group) in regards to perceptions of self-efficacy?

In terms of research question two, statistical significance was determined for both general and social self-efficacy. Male students experiencing the entire adventure process gained more ($M = .23$) from pre to post1 on general self-efficacy than males ($M = -.01$)

not exposed with a $d = .6$ or medium to large effect size. Table 4.5 also shows statistical significance for the same male students on social self-efficacy. The effect size ($d = .6$) is considered medium to large.

In addition, there was a significant difference for the adventure stage (posttest 1 – posttest 2) between the intervention ($n = 29$) and comparison students ($n = 33$) on social self-efficacy, $t(43.43) = 2.09, p = .042$. Adventure group male gain scores ($M = .24$) were higher than no adventure group male students ($M = .01$) with an effect size of $d = .6$ or medium to large effect. The t and df were adjusted because variances were not equal.

Table 4.5. *Comparison of the Gains of the Two Levels of the Entire Adventure Intervention Process in regards to Perceptions of Self-Efficacy* ($n=28$ adventure group and $n=41$ no adventure group)

Variable	<i>Pre M</i>	<i>Post 2 M</i>	<i>Gain M</i>	<i>Gain SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
General self-efficacy					2.40	67	.019
Adventure group	3.83	4.05	.23	.43			
No adventure group	3.86	3.85	-.01	.39			
Social self-efficacy					2.62	67	.011
Adventure group	3.70	3.99	.29	.51			
No adventure group	3.70	3.63	-.07	.59			

Note: 5-point Likert Scale 1=Strongly Disagree to 5=Strongly Agree.

Research Question Three

Are there differences between the two levels of the entire adventure intervention process (adventure group versus no adventure group) in regards to academic achievement?

For research question three, differences between the adventure group and the no adventure group were measured by gains in their academic achievement for quarters two and three. As previously stated, the “I” Team programs run on a quarterly system with each quarter lasting approximately nine weeks. For every nine week academic course the students can earn .25 of academic credit. Each student needs approximately 21 credits to graduate.

The results for question three found a statistically significant difference between students receiving the entire adventure process and those not experiencing the process on academic achievement. Table 4.6 shows adventure group males gained the equivalent of approximately three academic, quarterly courses ($M = .74$) while their counterparts had less than one academic class increase ($M = .14$). The unadjusted effect size was $d = .9$. The unadjusted confidence interval for academic achievement gain difference was .26 to .94. The difference ($M = .60$) in credits gained between groups was the equivalent of more than two academic, quarterly classes. However, it is important to note that the adventure group students who participated in the 5 – day course earned an additional .47 credits each for the trip. As such, the adjusted gain was approximately .13 credits or less than one academic course with an adjusted effect size of $d = .2$ considered small according to Cohen. The t and df were adjusted since equal variances could not be assumed based on a significant Levene’s Test score.

Table 4.6. *Comparison of the Gains Between the Two Levels of the Entire Adventure Intervention Process in regards to Academic Achievement (n=29 adventure group and n=54 no adventure group)*

Variable	<i>Pre M</i>	<i>Post M</i>	<i>Gain M</i>	<i>Gain SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Male academic achievement					3.59	42.74	.001
Adventure group	1.31	2.05	.74	.81			
No adventure group	1.04	1.18	.14	.56			

The *t* and *df* were adjusted because variances were not equal.

Note: .25 is the equivalent to 1 academic course over a nine week quarter.

Research Question Four

Are there differences between the two levels of the entire adventure intervention process (adventure group versus no adventure group) in regards to attendance?

Regarding research question four, differences between the adventure group and the no adventure group were measured by percentage gains/decreases in their attendance for quarters two and three. Quarter two had a total of 42 academic school days and quarter three was 43 days in duration. The “I” Teams have as goals for each attending student, personal growth and academic achievement. One critical aspect of achieving these goals is students must maintain satisfactory attendance. The “I” Team students who perform satisfactorily in the classroom may achieve academic credit but only if their attendance is consistent. That is, students who exceed seven absences over a nine week quarter jeopardize their ability to achieve academic credit. Accordingly, attendance is

directly and indirectly connected to academic achievement. And, academic achievement is obviously critical to completing diploma requirements.

In terms of question four, there was a statistically significant percentage gain difference between adventure experiencing students and students with no adventure experience on attendance. As seen in Table 4.7, adventure group students missed $M = 10.09\%$ or 4.24 academic days during the second quarter (pretest) while their no adventure counterparts were absent for $M = 12.01\%$ or 5.04 school days for the same period. Over the course of the period covered by the posttest (third quarter), adventure group student absences were $M = 7.95\%$ (3.42 days) a decline of $M = -2.13\%$. The no adventure group was absent for $M = 15.34\%$ or 6.60 days of the third quarter an increase in gain absences by $M = 3.33\%$. Male adventure students had significantly fewer absences by percentage than males not involved with the adventure process. The effect size was $d = .4$ or medium to low effect. Similar to results reported for research question three, the t and df were adjusted because variances were not equal.

Table 4.7. *Comparison of the Percentage Gains Between the Two Levels of the Entire Adventure Intervention Process in regards to Attendance (n=29 entire adventure group and n=54 no adventure group)*

Variable	<i>Pre M</i>	<i>Post M</i>	<i>Gain M</i>	<i>Gain SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Male attendance					-2.19	76.03	.032
Adventure group	10.09%	7.95%	-2.13%	6.37			
No adventure group	12.01%	15.34%	3.33%	16.18			

The t and df were adjusted because variances were not equal.

Research Question Five

What percentage of “I” Team students participating in the adventure intervention stage exhibit self-efficacy behavior based adventure education skill development?

As previously stated (p. 23), there are four identified influences that contribute to efficacy beliefs (performance attainment or mastery experiences, vicarious experiences, verbal or social persuasion, and emotional or physiological states). Sachs and Miller (1992) utilized these influences and the “efficacy expectation source and mode of induction” (p. 93) model developed by Bandura (1977) and modified it for wilderness activities. This study adapted (see Table 4.8) and utilized the Sachs and Miller model for the purposes of developing an in field, self-efficacy behavior based adventure education skill development checklist (Appendix E). The checklist was used to obtain descriptive data pertaining to the acquisition of self-efficacy behavior based adventure education skills connected with the adventure intervention stage of the study.

In terms of research question five, field observations of the adventure group ($n = 29$) were insightful while supporting other self-efficacy data collected for previous questions. Specifically, a high percentage of adventure group students were observed performing self-efficacy related behaviors. Figure 4.1 shows the percentage of students performing at the highest levels (strongly agree and agree) by self-efficacy categories developed for adventure activities. In total, there were 17 questions distributed into the four categories: mastery experiences (questions 1-6), vicarious experiences (questions 7 – 9 & 13), verbal persuasion (14 – 16), and emotional state (10, 11 & 17). In addition to information illustrated in Figure 4.1, behavior checklist question two (mastery experiences) “Gives effort in hiking experience” had the highest, observable self-efficacy

type behavior with 20 of 29 students performing at the strongly agree level. While checklist question 17 (emotional state) “Participates in group trust building exercises” (6 out of 29 students falling into the strongly agree level) appeared to be the weakest category.

Table 4.8. *The Relationship Between Self-Efficacy and Adventure Intervention Process* (Adapted from Sachs and Miller, 1992)

<i>Sources of Self-Efficacy</i>	<i>Adventure Activities</i>
Mastery Experiences	1. Performs tent and camp set up tasks. 2. Gives effort in hiking experience. 3. Performs water filtering task. 4. Performs cook stove set up task. 5. Prepares meals when designated. 6. Cleans up when designated.
Vicarious Experience	7. Participates as team member in cooking group. 8. Participates as team member in larger group. 9. Models equipment set up to others less familiar and/or comfortable with experience. 13. Displays positive team attitude.
Verbal Persuasion	14. Verbally encourages others who may be struggling. 15. Shows empathy towards others in group. 16. Offers suggestions in situations rather than complain.
Emotional State	10. Participates and is respectful in group circles. 11. Participates in group processing activities. 17. Participates in group trust building exercises.

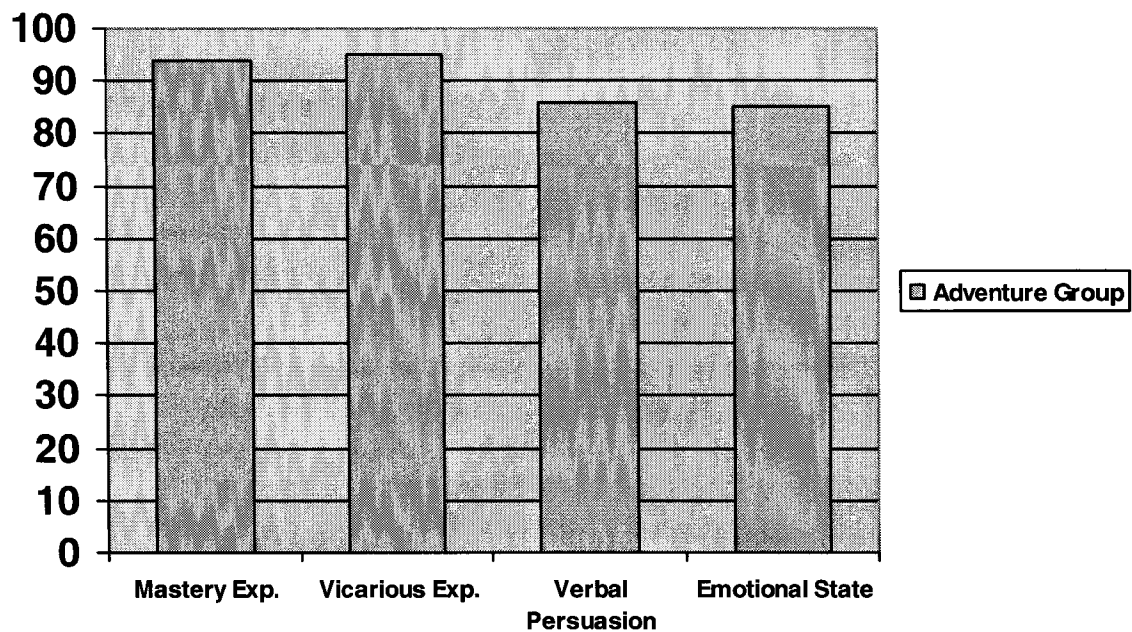


Figure 4.1. Percentage of students performing at the highest levels (strongly agree and agree) by self-efficacy categories developed for adventure activities ($n=29$ entire adventure group).

Summary

Measuring and analyzing the impact of adventure education on male students with special needs has provided interesting insights. As stated, five out of six aspects of the study were supported by statistically significant data. Many aspects of questions 1 - 4 seemed to be practically significant based on at least medium effect sizes. Significant gain differences were found for general and social self-efficacy in regards to the entire adventure process. Student general self-efficacy was statistically significant for the pre-adventure stage as well as social self-efficacy over the adventure stage of the intervention. Male social self-efficacy gains were not statistically significant for the pre-adventure stage of the study, but the research questions related to attendance and

academic achievement were significant. Effect sizes for questions 1 - 4 ranged from $d = .2$ (low) to $d = .9$ which is considered large.

Finally, results for question five which sought self-efficacy related descriptive data supported findings reported on questions 1 - 2. In terms of self-efficacy, adventure related behavior categories, students were observed performing at high levels (strongly agree and agree). Specifically, 94% of males in the adventure group performed at high levels regarding the mastery experience category; 95% for vicarious experiences; 86% were observed at high levels for verbal persuasion; and 85% of adventure group students were seen performing tasks at high levels in the emotional state category.

CHAPTER 5

DISCUSSION

Introduction

The number of special needs, high school age students who stay in school and graduate is low and needs attention (United States Department of Education, 2002). Further, it is currently unclear what the impact of the No Child Left Behind policy will ultimately have on vulnerable groups such as students identified with special needs (Mandlawitz, 2004; NEA Today, 2004; Rouse, 2004). The “I” Teams essentially have two goals for each attending student, personal growth and academic achievement so they may move towards productive citizenship. Service provision in support of these goals includes academic instruction, case management, vocational education, social skill development, mental health support, and experiential/adventure education.

Critical to achieving program goals students must maintain satisfactory attendance that is directly and indirectly connected to academic achievement. Another key to this endeavor is the ability of students to develop a stronger sense of self-efficacy. Bandura (1977) defines perceived self-efficacy as the expectation that one can successfully perform a behavior. Self-efficacy beliefs affect individual functioning indirectly by influencing a person’s cognitive, motivational, affective, and selection processes. People with high level self-efficacy construct successful life scenarios, set challenging goals, persist in the face of difficulty, and better control disturbing thoughts (Bandura, 1977; Bandura, 1982; Gredler, 2001).

This study examined the impact of experiential learning, specifically adventure education, on attendance, academic achievement, self-efficacy behavior based adventure education skill development, and self-efficacy perceptions of male high school students primarily identified with special needs. The study approach was a nonequivalent comparison group, quasi-experimental, pretest, posttest 1, and posttest 2 design of moderate strength. As stated in Chapter 3, the identified study environment did not lend itself to random assignment to groups, or random assignment of treatment to intact groups.

The current study environment did not allow for a random sampling design or probability type sampling. Thus, the sampling design was a nonprobability, convenience selection process. It was considered a convenience type sample based on the fact that study participants were identified through an accessible school district (Cherry Creek) and selected through the researchers place of employment (“I” Teams). Intact groups (“I” Team programs) were identified and aligned into intervention and control groups due to perceived similarities founded on prior knowledge of the researcher who had worked in each program over the last five years. The selection and alignment of the intact groups was carried out with the hope of addressing the external validity issue of representative sampling.

The accessible sample consisted of approximately 157 male students attending the five “I” Team programs (Cottage, Manor, Ranch, Outback, and Estate) in the Cherry Creek Public School District. The selected sample ($n = 147$) was all consenting male students from all five programs or approximately 94% of the accessible population. This study initially collected data from a total of 123 male students as an actual, overall

sample number or 84% of consent giving students (see Table 4.1). Of the $n = 123$, 54 students were included in the no adventure group, 29 for the adventure group, and 40 fell into the unselected group.

Beyond the general group breakdown, all three groups (unselected, adventure, and no adventure) were compared for significant differences by ethnicity, special need, age, and prior experiential trip days. Chi-square tests were utilized for ethnicity, special need, age, and previous trip day comparisons (see Table 3.3). Results indicated no significant differences between the three groups. Similarly, pre-general self-efficacy (GSE) and pre-social self-efficacy (SSE) scores were compared for differences among the three groups using one-way ANOVA's. Outcomes for the analyses indicated no significant differences with the exception of the pre-general self-efficacy data among groups. Post hoc tests (LSD) indicated that the unselected group was different from both the adventure and no adventure groups for pre-GSE. Ultimately, comparisons suggested that the 83 students (studied sample) who made up the adventure and no adventure group were similar and not greatly different than the actual sample of 123 with the exception of the pre-general self-efficacy variable. For this study, population external validity was considered medium based on the attempt to obtain a good sample representative to the accessible population.

Ecological external validity was medium to high due to the consideration of all five rating categories such as naturalness of conditions, use of site based gatekeepers, previous experiential intervention exposure and use of questionnaires. Where it is said that most published studies in the social science and education rely on nonprobability sampling, it is equally important to include that this type of sampling design is not the

best way to describe or generalize to entire populations. Along those lines, most social science and education research is not necessarily interested in describing whole populations suggesting that being able to identify key factors that may influence the dependent variable is the primary aim (Gliner & Morgan, 2000). Similarly, this study was not interested in broad generalization but may be extrapolated to analogous environments based on consumer discretion.

The adventure intervention process stage for this study took the form of a 5-day hiking and camping trip to the mid-eastern, high desert region of Utah in March 2005 and all pre-adventure staging activities. The gain score approach was utilized for primary data analysis and independent *t*-tests were implemented. Included in the result reporting was effect size (*d*). Effect size is defined by Morgan et al. (2004) as the “strength of the relationship between the independent variable and the dependent variable” (p.89) that adds insights of practical significance to statistical significance. Cohen’s (1988) rough guidelines of $d = .2$ (small effect), $d = .5$ (medium), and $d = .8$ (large effect) were used for interpreting *d* values but were applied with qualifications.

Measuring and analyzing the impact of adventure education on male students with special needs has provided interesting insights. As stated in Chapter 4, five out of six aspects of the study were supported by statistically significant data. Many aspects of research questions 1 - 4 seemed to be practically significant based on at least medium effect sizes. Significant gain differences were found for general and social self-efficacy in regards to the entire adventure process. Student general self-efficacy was also statistically significant for the pre-adventure stage as well as social self-efficacy over the adventure stage of the intervention. Social self-efficacy gains were not statistically

significant for the pre-adventure stage of the study. In addition, the research questions related to attendance and academic achievement were significant. Effect sizes for questions 1 - 4 ranged from $d = .2$ (low) to $d = .9$ which is considered large according to Cohen's guidelines. The results for question five which sought self-efficacy related descriptive data supported findings reported on questions 1 - 2. In terms of self-efficacy, adventure related behavior categories, students were observed performing at high levels (strongly agree and agree). Specifically, 94% of students in the adventure group performed at high levels regarding the mastery experience category; 95% were noted for vicarious experiences; 86% were observed at high levels for verbal persuasion; and 85% of adventure group students were seen performing tasks at high levels in the emotional state category.

As mentioned throughout, the "I" Teams have two programmatic goals for each attending student; personal growth and academic achievement. One significant intervention in support of these goals is the experiential/adventure education process. In the following section, a detailed discussion of the study's significance is presented. Moreover, the interpretation of the findings is grounded in previous literature presented in Chapter 2. Present study research questions were also discussed by their alignment with programmatic goals. Accordingly, research questions one, two, and five were discussed in the context of *adventure*, *self-efficacy*, and *personal growth* while questions three and four were discussed in terms of *adventure*, *attendance*, *credit*, and *achievement*. Finally, the discussion chapter concludes with a section on contributions to research and knowledge section, a summary, study limitations, and recommendations for future research.

Adventure, Self-Efficacy, and Personal Growth

The majority of “I” Team students arrive at the programs with failed academic and social experiences in the public school system. Where many identify their high school experience as being unsatisfactory others go back even farther to middle or elementary school. As such, many “I” Team students turn up disengaged, unempowered, and lacking a sense that they can achieve. Critical to attacking these issues is the development of self-efficacy perception. Bandura (1977) defined perceived self-efficacy as the expectation that one can successfully perform a behavior. Research question one examined the differences between the two levels of the pre-adventure process of the experiential/adventure intervention on perceptions of self-efficacy. The pre-adventure process stage of the intervention consisted of the promotion, application, interviewing, and selection phase of the adventure intervention as well as pre-departure meetings to discuss logistical, conduct, equipment familiarity and other preparatory type issues. There was a statistically significant difference between students experiencing the pre-adventure process and their no pre-adventure counterparts regarding general self-efficacy. Effect size was $d = .5$ suggesting a medium significance according to Cohen.

The key to understanding the statistical significance of general self-efficacy on the pre-adventure stage of the process is that it was specifically designed to foster that exact perception. The pre-adventure process engaged many struggling students and promoted enhanced general self-efficacy by exposing the participants to a rigorous process aimed at elevating self perceptions of efficacy. Through the pre-adventure process, selected students had invested a great deal of time, completed applications, survived a thorough interview examination, had their status meticulously considered by

staff members, were celebrated for their adventure trip selection, and attended preparatory trip meetings emphasizing the demanding nature of the intervention and the honor of their selection. At the end of the pre-adventure process, the selected participants had successfully performed pro self-efficacy behaviors through the achievement of considerable tasks that positively impacted their efficacy perceptions. The students who participated in the pre-adventure process achieved higher levels of general self-efficacy thereby enhancing their perceptions of carrying out specific behaviors. In this case, the specific behaviors included personal and programmatic goal attainment, completion of a rigorous five day adventure trip consisting of demanding physical exertion, academic journaling, and individual and group reflective and processing type activities that were also very similar to adventure process characteristics described by West and Crompton (2001).

The second part of question one looked at social self-efficacy for the pre-adventure process. Regarding the non-significance of the pre-adventure process on social self-efficacy, the result was not greatly surprising. That is, the energy of the pre-adventure process was definitely more engineered to promote general self-efficacy rather than social. The pre-adventure process was focused on the promotion of the individual self-efficacy perception. The social self-efficacy aspect of the process was just being introduced at the end portion of the pre-adventure stage and was not fully interjected until the actual adventure stage. The adventure stage was saturated with activities aimed at the socialization of the individual and group. In fact, the socialization of the individual and group was a primary goal along with development of rapport and trust among trip participants. This goal was supported by significant data that suggested the adventure

students gained a greater sense of social self-efficacy over the adventure intervention process. Effect size was $d = .6$ suggesting a medium to large effect.

Research question two compared the differences between the two levels of the entire adventure intervention process in regards to student perceptions of self-efficacy. The pretest was conducted in between February 23 - 25, 2005. The Utah experiential/adventure intervention trip took place March 21-25, 2005. And the posttest 2 took place Tuesday April 4 and Wednesday April 5, 2005 approximately 10 days after intervention closure. Students who participated in the entire adventure process were shown to have statistically higher perceptions for both general and social self-efficacy. The effect size (ES) for both were $d = .6$ considered medium to large effect. The ES for this study was also comparable to the cumulative self-efficacy (SE) effect size of (immediate and follow up effect sizes) $d = .52$ reported by Hattie et al. (1997).

It is said that people with high level self-efficacy construct successful life scenarios, set challenging goals, persist in the face of difficulty, and better control disturbing thoughts (Bandura, 1977; Bandura, 1982; Gredler, 2001). Students who participated in the adventure trip demonstrated high levels of both general and social self-efficacy over the course of the entire intervention. Moreover, the significant results were further accentuated by the fact that posttest 2 took place 10 days after the closure of the intervention in contrast to previous studies that measured immediately after the intervention (Cross, 2002; Hattie et al., 1997). The decision to administer posttest 2 approximately 10 days after the adventure trip stage was specifically directed at countering the phenomenon referred to as post intervention euphoria by Hattie et al.

(1997). As such, the issue of unsystematically elevated SES scores appeared to be addressed thereby avoiding false significance due to potentially extraneous factors.

Sherer et al. (1982) described the scales (GSE and SSE) as measuring respondents' willingness to initiate behaviors, expend energy in completing a behavior, and persist in the face of adversity. True to the developers' intent, adventure trip students showed marked increases in behavior initiation, completion of behaviors, and persistence in the face of adversity specific to the rigorous, demanding, and challenging endeavor of conquering a 5 – day, high desert backpacking expedition.

Gredler (2001) in describing Albert Bandura's theory defines perceived self-efficacy as the "learner's belief in his or her capabilities to successfully manage situations that may include novel or unpredictable elements" (p. 330). Further, there are four identified influences that contribute to efficacy beliefs. Those influences are mastery experiences, vicarious experiences, verbal persuasion, and emotional states (Bandura, 1977; Bandura, 1995; Gredler, 2001). Research question five sought to determine the percentage of male "I" Team students participating in the adventure intervention that exhibited self-efficacy type behavior based on the adventure education skill development checklist completed by the designated trip leaders. Specifically, the adventure group students performed at high levels in each of the four self-efficacy behavior categories.

Mastery experiences refer to the individual acquisition of situational, cognitive and behavioral skills and are considered the most authentic evidence about an individual's capability. The adventure group students were collectively observed performing mastery experience type tasks 94% of the time over the course of the intervention. Successful mastery of experience tends to raise personal efficacy

perception while repeated failures may lower judgment. Mastery experience design should not consist of easy successes as individual experience attainment needs to be attributed to skill not chance (Bandura, 1977; Gredler, 2001). For trip participants, successful mastery skill development was attributed to the experiential design of the intervention (novel or unpredictable elements) requiring students challenge their perceived capability levels or comfort zones. Through the safe and appropriate exposure to challenging SE type tasks, the adventure trip participants were able to successfully develop beneficial mastery experiences.

Vicarious experiences are helpful when the observer can identify with the model. Models help demonstrate effective, desirable contextual strategies and attitudes. Further, vicarious experiences can be particularly influential when individuals have little to no prior exposure to the situation. Specifically, 95% of students in the adventure group performed at high levels (strongly agree and agree) regarding the vicarious experience category. The simple definition of experiential education is learning by doing, and learning by doing is best carried out when appropriate, identifiable models are used. Regarding this adventure trip, each trip leader or model had considerable previous experience not only with the specific trip (Utah, high desert expedition) but also possessed extensive experiential learning process knowledge. Specifically, a knowledge that brought to bare the critical elements of experiential learning described by Joplin (1981) often called the “action-reflection” cycle (p. 17).

In addition, peer models were also utilized during the process. A case in point was all students were required to participate in an equipment check meeting just prior to adventure departure. At those meetings, all students were required to have hands on

experience with setting up tents, operating water filters, setting up and operating camp stoves, and breaking down and packing food supplies that would be taken on the trail. In brief, several students possessed previous backcountry (mastery) experience so that they could and were used as models for other, less experienced teammates. The peer models demonstrated specific tasks which in turn were transferred to others through vicarious experience. The other adventure group students replicated the behaviors thereby heightening SE perceptions. Moreover, the utilization of peer modeling was carried over into the field where a strong majority of adventure students were observed sharing through vicarious experience.

In terms of verbal persuasion, 86% of participants performed at high levels. Verbal persuasion can help counter mild self-doubts while allowing the individual to measure success in terms of improvement and not perceived deficiencies (Bandura, 1995; Gredler, 2001). Dating back to the pre-adventure stage, specifically the application and interview phase, intervention students were asked how they would respond if an adventure teammate was struggling on the trail. The responses from the individual members varied. Where some answers covered aspects of both physical and verbal support, some individuals suggested the struggling members were on their own or that the other group members should continue on and wait down the trail. From that point, and throughout the entire adventure process, the adventure group members were coached, encouraged, and supported to verbally persuade all team members. By the time the group was notified of the trip selection, trip leaders emphasized a united team mentality; one for all and all for one. Group cohesiveness was highlighted from start to finish and verbal

persuasion of all members was purposively interwoven into many aspects of the intervention resulting in the high percentage outcome amongst members.

Many students from the intervention group had never experienced an adventure trip before. Even students who had prior backpacking and camping experience were not prepared for the expedition before application and ultimate departure. Stepping out of their comfort zones provoked concern, anxiety, and some fear. Verbal persuasion was a critical component so students could be challenged, challenge themselves, and challenge other team members. Adventure group students were able to overcome their concerns while also assisting others in a significant way because of high level self-efficacy through verbal support. Where verbal persuasion in and of itself can not develop high beliefs of self-efficacy (Bandura, 1995; Gredler, 2001), it is important to recognize that an emphasis on other SE influences such as mastery experience, vicarious experience, and emotional/trust as well as verbal persuasion led to observable self-efficacy elevation over the course of the trip.

Emotional or physiological states can also impact self-efficacy perception. That is, stress and tension can signal vulnerability to poor individual performance and alter personal efficacy. Reducing tension and negative emotional tendencies can counteract the vulnerability of poor self-efficacy perception (Bandura, 1995; Gredler, 2001). Regarding this SE category, the reduction of tension and negative emotional tendencies among a group of students with the described special needs was important yet challenging. And, perhaps this is the reason why this SE influence category had the lowest observable percentage at 85%. Nevertheless, the percentage was still considerable.

Similar to the other SE influences, activities were focused on the development of the emotional state. Specifically, trust and rapport development activities were built into many of the daily processing, group circles recognizing that the trip could provoke tension and stress leading to negative emotional responses by students. The emotional state influence was seen by trip leaders as a critical foundation for growth during the intervention. Thus, trip leaders emphasized this SE influence so adventure group students could come together as a team and be better able to combat considerable tension and negative emotional tendencies during the trip.

Ideally, individuals can learn to interpret stress signals as a need for increased effort in an attempt to maximize efficacy beliefs (Bandura, 1995; Gredler, 2001). Over the course of the adventure trip a strong majority of students exhibited this type of SE behavior. Yet, in the real world this can be a tall order for supposedly well adjusted individuals not to mention adolescent males with special needs. Where the emotional state category had the lowest observable percentage it was perhaps the most important. In other words, it may be even more meaningful in a real world context that 85% of the adventure group demonstrated tension reducing behaviors in a highly stressful endeavor. Ultimately, the categories of SE influence should not be viewed in isolation. They are, intricately interwoven, and systematically connected so as to enhance SE type perceptions. In brief, adventure students exhibited pro self-efficacy behavior through the accomplishment of SE related tasks in a challenging yet supportive environment that was conducive to growth.

Adventure, Attendance, Credit, and Achievement

Each “I” Team program is an alternative, public education setting supporting approximately 50 students with special needs. Students range in age from 16 to 21 and include mostly juniors and seniors seeking graduation. The students served have special needs including depression, bi-polar, oppositional defiant type disorders, learning disabilities, and attention deficit or hyperactivity disorders. Moreover, the majority of “I” Team students arrive with years of unsatisfactory attendance and sub-par academic achievement. The interdisciplinary programs are teams that promote essentially two goals for all students; personal growth and academic achievement (Schettler, 2003). To achieve these stated goals a multitude of intervention strategies are implemented by the teams and communities. The programs function as one, significant intervention for special needs adolescents; individuals who would probably drop out of school without achieving a diploma. Within this context, there are several key intervention strategies one of which is experiential/adventure education. Just as for research question one, two, and five, adventure education was the primary intervention examined for this study.

The adventure intervention process stage took the form of a 5-day hiking and camping trip to the mid-eastern, high desert region of Utah in March 2005 and all pre-adventure staging activities; combined both stages made up the entire adventure process. Where self-efficacy was the primary outcome variable for questions one, two, and five, academic achievement records for the second (November 1, 2004 – January 14, 2005) and third quarters (January 18 – March 25) of the 2004-2005 academic school year were utilized for research question three. And, attendance records for the second (November 1

– January 14) and third quarters (January 18 – March 25) of the same academic year were examined in terms of question four.

Research question three examined the impact of an experiential/adventure intervention on students' academic achievement. Specifically, the question looked at the differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to student academic achievement. The results for question three found a statistically significant difference between students receiving the entire adventure process and those not experiencing the process on academic achievement. Results showed the adventure group gained the equivalent of approximately three academic, quarterly courses ($M = .74$) while their counterparts had less than one academic class increase ($M = .14$). The unadjusted effect size was $d = .9$. The difference ($M = .60$) in credits gained between groups was the equivalent of more than two academic, quarterly classes. However, it is important to note that the adventure group students who participated in the 5 – day course earned an additional .47 credits each for the trip. As such, the adjusted gain was approximately .13 credits or less than one academic course with an adjusted effect size of $d = .2$ considered small according to Cohen.

As noted, the majority of “I” Team students have struggled at achieving academic credit. Further, it is important to recognize that each “I” Team program has academic achievement as a primary goal so students may progress towards productive citizenship. One critical aspect to achieving this goal is students must feel that credit achievement is within their grasp. That is, some students arrive at the “I” Team programs with fewer than five credits (21 are needed for graduation) when technically their grade level status

is either a junior or senior. Comparatively, juniors at the regular high school would have approximately 10 credits, and seniors would have 15. Students with special needs can stay in school until 21 years of age but it is also true that the pressure to graduate on time is enormous. This added stress is heaped upon other existing emotional, familial, and environmental type issues creating a situation that is often devastating to a student's sense of success. In recognizing the compounding pressures, the knowledge that individual students may gain any additional academic credit by satisfactory participation on an experiential/adventure trip is significant and powerful.

Beyond statistical significance lies the need for discussion regarding the strength of relationship between the independent variable (IV) and the dependent variable (DV). In this study, adventure group students appeared to achieve the equivalent of more than two academic, quarterly classes better than their no adventure counterparts. However, after taking into account the additional averaged, gained credit (.47) for the trip participants the significance seemed to be a bit diluted. That is, an overall gain of .13 credits is less than one academic course. Yet, to a student who is struggling to gain momentum after years of academic and emotional despair, the promise of any additional credit is meaningful. "I" Team students who successfully participate on trips, gain credit and begin to realize that perhaps they are not so far behind after all. Their decision to stay in school and achieve a diploma begins to shift from a tenuous foundation of remote possibility to solid probability. The experiential/adventure trips are engaging, exciting, and rewarding for disengaged students. Moreover, the exposure to experiential/adventure trips provide them with a sense that they can once again enjoy learning while also achieving academically.

“I” Team students who perform satisfactorily in the classroom may achieve academic credit but only if their attendance is consistent. That is, students who exceed seven absences over a nine week quarter jeopardize their ability to achieve academic credit. Thus, attendance is directly and indirectly connected to academic achievement. Research question four examined the differences between the two levels of the entire adventure intervention process (adventure process versus no adventure process) in regards to student attendance.

In terms of question four, there was a statistically significant percentage gain between adventure group participants and students with no adventure experience on attendance. Adventure group students missed $M = 10.09\%$ or 4.24 academic days during the second quarter (pretest) while their no adventure counterparts were absent for $M = 12.01\%$ or 5.04 school days for the same period. Over the course of the period covered by the posttest (third quarter), adventure group student absences were $M = 7.95\%$ (3.42 days) a decline of $M = -2.13\%$. The no adventure group was absent for $M = 15.34\%$ or 6.60 days of the third quarter an increase in gain absences by $M = 3.33\%$. Adventure group students had significantly fewer absences by percentage than students not involved with the adventure process. The effect size was $d = .4$, a medium to low effect which is similar to the $d = .47$ reported by Cason and Gillis (1994) on school attendance.

As previous stated the majority of “I” Team students arrive to the programs with years of unsatisfactory attendance. Although the issue is certainly complex, there are several plausible reasons for their non attendance. One reason for “I” Team students’ unsatisfactory attendance may be that they come from buildings that house between 2000 – 3600 students. Students with special needs begin to struggle with academic and

emotional issues and in short order fall between the cracks especially when people lose track of their presence. Similarly, students in such huge programs are not connected enough to keep them in attendance. In short, the lack of meaningful, healthy, and rich relationships with staff and/or peers results in students dropping out with the sense that no one really cares. Lastly, many “I” Team students may simply have lost their interest in learning and education. Perhaps they have been worn down by years of being called “retarded” or humiliated by riding the “short” special education bus, or feeling that they are incapable of achieving academically so there is no point in continuing with school.

For many years, the “I” Team programs have recognized these issues and reached out to students with special needs. One way they have attempted to engage these students is through experiential/adventure education. This study found that students who were exposed to the entire adventure process had significantly fewer absences than their counterparts. The findings can be attributed to adventure trip students being more engaged with the school environment as a by product of their involvement with the intervention process. Students who ultimately were selected to be part of the intervention were engaged four weeks prior to the adventure trip departure by activities including trip promotion, application phase, personal interviews, group selection, notification, and adventure preparation type meetings. The successful completion of these tasks supported adventure student perception that they could achieve, that they were valued and that they could make a contribution while also being connected to something larger than self.

Further, the adventure trip itself was an intensive intervention aimed at elevating student involvement in school while addressing both programmatic and personal goals. The adventure intervention helped provide students with a purpose to attend school on a

more regular basis. This active engagement of those selected promoted a higher level of program involvement than their no adventure counterparts. Simply, students who participated in the entire adventure process were more motivated to attend school. They were energized by the adventure process and rewarded for making an effort that, for many, was clearly out of their zones of comfort.

Contribution to Research and Knowledge

Over the years, hundreds of adventure therapy programs serving populations with special needs have been documented in the literature, yet relatively few scientific evaluations of their effectiveness have been reported (West & Crompton, 2001). While many adventure program studies looking at an array of variables have reported positive outcomes, research in the field has repeatedly come under attack for poor methodology and design issues (Cason & Gillis, 1994; Hattie et al., 1997). This study addressed the methodology and design issues in the following way. First, the most stringent quantitative, scientific, and appropriate design for the environment was implemented. The study was a moderate strength, quasi-experimental, pretest-posttests non-equivalent control group design. In terms of the current study, the strongest appropriate design was utilized while heeding recommendations gleaned from the literature.

Gliner and Morgan (2000) state that internal validity “depends on the strength...of the design and influences whether one can conclude that the independent variable...caused the dependent variable to change” (p. 83). Threats to internal validity are grouped into two broad categories; the first, equivalence of groups on participation characteristics and secondly, control of extraneous or environmental variables.

For this particular study, internal validity was considered seriously, especially regarding selection and experimental mortality issues. Mortality issues were addressed by the inclusion of as many participants as programmatic protocol allowed; the development of a strong study protocol, and the effective use of “I” Team gatekeepers within the specific programs that encouraged research participant commitment. Regarding equivalency of groups, comparisons were run on adventure and no adventure groups by ethnicity, special need, age, and prior experiential trip days. Chi-square tests were utilized for ethnicity and special need comparisons while *t*-tests were utilized for age and previous trip days. Results for all comparisons indicated no significant differences between the adventure and the no adventure groups thereby suggesting similarities among the two.

Recognizing that the intervention data collection process was confined to a period of approximately six weeks, threats such as maturation, historical events, and instrumentation were negligible. To address inherent biases related to self report measures such as Hawthorne effect, social desirability, and post group euphoria, steps were taken to control for these factors (Sibthorp, 2003). Examples included the development and implementation of a structured and stringent research protocol that reduced bias connected to prior established relationship between researcher and participants, and the use of standardized measures that took into consideration repeated measures and social desirability type responses. Overall, internal validity was deemed to be medium for both dimensional threats based on significant attempts to control and address group equivalency issues.

Once data were collected, the gain score approach was utilized for primary analysis. This approach was used since it is generally considered a simpler method of analysis than the mixed ANOVA when working with pretest-posttest design. In fact, the gain score approach converts the mixed design into a single factor design. For this study, pretest scores were subtracted from posttest scores for each study participant. The dependent variable scores were then average gain scores which were the differences from pretest to posttest. At that stage an independent *t*-test was implemented.

Sibthorp (2000) stated in a review of adventure education measurement that: “19 of the 65 studies reported problems with measurement or provided questionable or incomplete information regarding the adequacy of the chosen instrument(s)” (p. 101). Prior to analysis of the research questions for this study, the Self-Efficacy Scale (SES) made up of the general and social sub-scales was assessed for reliability. Internal consistency reliability was evaluated using the Cronbach alpha. Reliability analysis for this study produced Cronbach alphas of .87 (GSE) and .63 (SSE), which are similar to Cronbach alphas of .86 and .71 obtained for the GSE and SSE subscales by the developers, Sherer et al., (1982). Since the SES was validated on late adolescents and had also been used with early adolescents (Ehrenberg, Cox & Koopman, 1991; Shetler, 1997) and young adults (Kelly, Coursey & Selby, 1997) in past research, confidence to proceed in this study was secured while also addressing previous literature concerns regarding measurement (Hattie et al., 1997; Sibthorp, 2000).

Hattie et al. (1997) suggests that only some programs are effective and only with some outcomes. That is, the findings gleaned from the reviewed literature have provided mixed results. The authors’ recommend the use of dependable measurement, the

examination of reasonable sample sizes, clear descriptions of participants, and the use of a quasi- experimental design approach (Hattie et al., 1997). This study was conducted with all these recommendations in mind.

Hattie et al. (1997) also suggested process oriented investigations measuring the interaction of major independent variables. Building on this suggestion the current study considered Laura Joplin's (1981) seminal work regarding experiential/adventure process:

The process is often called an 'action-reflection' cycle. The process is generally referred to as a cycle, on-going and ever-building with the later stages being dependent on the earlier stages...the five-stage model is organized around a central hurricane-like cycle, which is illustrated as challenging action. It is proceeded by a focus and followed by a debrief. Encompassing all is the environment of support and feedback. The five stages are one complete cycle, where completion of the fifth stage is concurrent with commencing the first stage of the following cycle. (p. 17)

Upon consideration, the Joplin's process model was utilized in the meticulous development of specific adventure trip process activities that were ultimately measured for significance.

In addition to examining the adventure process this study also looked at the pre-adventure process. Once again, the pre-adventure process stage of the intervention consisted of the promotion, application, interviewing, and selection phase of the adventure intervention as well as pre-departure meetings to discuss logistical, conduct, equipment familiarity and other preparatory type issues. These activities were identified, operationalized, implemented, and then measured in regards to participant SE perception. The inclusion and measurement of the process stages covered a timeframe of approximately six weeks thereby enhancing study design strength while recognizing recommendations from the literature.

Ultimately, the focus on study design and adventure learning processes made a difference in terms of this research project. Beyond the obvious, previously examined processes there were additional critically important components. Several that included the selection of experienced trip leaders, study design limiting impact on individual programs in hopes of maximizing their genuine involvement, extensive communication by the researcher regarding the trip journal, processing group content, adventure trip location and time of year; all process elements coalesced to maximize the possibility of finding significant outcomes if they were in deed present.

In Chapter 1, experiential education was simply defined as “learning by doing” while also drawing attention to the more complex nature of its origins. Guthrie (2003) drew a more comprehensive picture:

When education is said to be *experiential*, it means that it is structured in a way that allows the learner to explore the phenomenon under study - to form a direct relationship with the subject matter - rather than merely reading about the phenomenon or encountering it indirectly. Experiential learning, then, requires that the learner play an active role in the experience and that the experience is followed by reflection as a method for processing, understanding, and making sense of it. (vol. 2, p. 760)

One key to understanding the significance of this study in the context of experiential learning and contributions to the discipline and knowledge can be summed up in one statement; experiential/adventure education can not be “learning by doing” without a specific focus on the experiential education process that includes action, support, feedback, and reflection.

Summary

To summarize, the current study that measured the impact of an adventure education on male adolescents with special needs was supported by both quantitative and descriptive data. Specifically, students who participated in the entire intervention process were found to have significantly higher level general self-efficacy (GSE) and social self-efficacy (SSE) perceptions than their control group counterparts. The same adventure group also had significantly improved academic achievement and attendance. Furthermore, students that were exposed to the pre-adventure process had significantly improved levels of GSE for that stage as well as significantly higher SSE for the adventure phase of the trip. As documented, not all data showed significance differences. That is, students who took part in the pre-adventure stage did not show significant improvement for the SSE in comparison to the no pre-adventure group. Self-efficacy based descriptive data collected in the field on adventure participants supported similar quantitative findings regarding SE perceptions. On average, 9 out of every 10 students were observed performing at high levels on the self-efficacy checklist through the accomplishment of specific related tasks and behaviors.

Hattie et al. (1997) suggested that only some programs are effective and only with some outcomes. That is, the findings gleaned from the reviewed literature have provided mixed results. The authors' recommended the use of dependable measurement, the examination of reasonable sample sizes, clear descriptions of participants, and the use of a quasi- experimental design approach (Hattie et al., 1997). The current study followed these recommendations thereby making a meaningful contribution to research and knowledge specific to experiential/adventure education. Moreover, it appears that the

well planned and implemented adventure intervention and study design maximized the potential for finding statistical significance and effect size (ES) which is in direct contrast to the findings of Cason and Gillis (1994) that associated lower ES with more stringent studies.

Ultimately, the findings from this study have strengthened service provision to male students identified with special needs in the Cherry Creek District. For many years, teachers and student support professionals have provided experiential/adventure education interventions to students attending “I” Team programs. Inevitably, students and staff alike would reflect on their experiences as incredibly enriching, thought provoking, and growth stimulating. Yet, in the current climate of public education reform, reflection, and words are not enough. In today’s climate, interventions must be evidence based. This study has provided valuable, evidence based data supporting experiential/adventure interventions on male adolescents with special needs.

Limitations

Study limitations were linked to the chosen sample, the related setting in terms of unpredictability, and the SE instrument. The majority of “I” Team students come from failed educational experiences. Moreover, the “I” Team programs are voluntary by design and as such students were free to come and/or go. Anticipated attrition in sample numbers proved correct but not overly problematic. The utilization of two, adventure trip leaders from sister programs thought once to be an issue did not materialize due to meticulous communication and coordination of activities. Researcher bias, as it pertained to intimate familiarity with a portion of the adventure intervention group and vague

knowledge of the control group was a consideration and was addressed. In terms of the SE instrument, reliability for the SSE sub-scale was not as high as perhaps desired. That is, where a Cronbach alpha of .63 may be permissible for basic research purposes the stated results should be considered with appropriate caution. The strengths supporting this study far out numbered any drawbacks. That is, beyond the stated points of study significance, this project provided valuable information for the continued support of future, experiential/adventure education type programming within the Cherry Creek “T” Team system as well as possible extrapolation to other, similar settings with consumer discretion.

Recommendations

Overall, this study accomplished many if not all pre examination goals. Yet, with any meaningful and thorough research project, important issues arise during the process that warrants further investigation. This study generated several points.

The first recommendation pertains to the design. Specifically, the design could have been improved by scheduling the intervention earlier in the academic year in order to capture an additional measuring period for both attendance and academic achievement variables. For this study, academic quarters two and three were utilized in comparing the adventure and no adventure groups. The design was carefully thought out and executed based on the type of trip (men’s) traditionally held in late March to accommodate weather and logistical related issues. For future study, a similar length trip could be the focus intervention but conducted perhaps during the second quarter so first, second, and third quarters of attendance and achievement data could be compared.

A second suggestion would be to include women's adventure type trips in future research projects. As stated previously, this study focused on male adolescents due to limited resources combined with the fact that approximately 70 percent of "I" Team students were young men. Seemingly, more and more young women are enrolling in the programs and going on experiential type trips. Where West and Crompton (2001) report relatively few scientific evaluations and their effectiveness have been conducted across the board, it appears that even fewer scientific evaluation of women's trips have been done. Accordingly, more quantitative type research projects should look into the impact of this type of intervention on females with special needs.

Another recommendation involves the group from this study designated as unselected. As previously stated, potential trip participants from three (Cottage, Manor, and Ranch) of the five "I" Teams expressed interest, applied, and interviewed; the staff teams then determined eligibility and ultimately participation. Not all who applied were selected or participated. This unselected category consisted of students who were not identified by "I" Team staff as appropriate candidates for the adventure trip. This study did not utilize the data from the 40 male students that fell into that group. Where this study was not designed to include the unselected group largely because of their inability to participate on the adventure trip, they potentially could be included in other, similar type research projects. One brief solution for the inclusion of more students would be to use an experiential/adventure type intervention that was not as demanding and potentially hazardous thereby including more students from the unselected category.

Next, it would be interesting to gain the insights and perspectives of the adventure participants, in their own words. That is, qualitative type interviews of the adventure

students prior to the intervention, in the field, and after the fact could provide valuable, rich personalized stories related to the adventure. The addition of subjective data to the already supportive quantitative evidence could further enhance the true impact of adventure education on students identified with special needs.

The final recommendation for future study pertains to the sample size.

As described in an article by Hattie et al., (1997) common features of adventure type programming include wilderness or backcountry settings, assignment of a variety of mentally and/or physically challenging objectives, frequent and intense interactions that usually involve group problem solving and decision making, and the use of small groups with usually less than 16 participants. In recognizing the nature and construction of experiential/adventure type trips the inclusion of really large sample numbers is probably not realistic short of meta-analysis type inquiries. Yet, to counteract this seemingly inherent experiential intervention study limitation, the designer of this study was creative in order to maximize potential sample numbers. That is, sister or like programs within the same district were pulled together to increase overall numbers. The literature is littered with studies that had small sample sizes, reported non-significant findings while then suggesting possible significance if the sample size was larger. It is true that experiential/adventure interventions may limit study numbers but through creative research study design the issue can be addressed.

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APPENDIX A

Name:

Date:

Program:

Instructions: Please place a check in the box that best fits your current opinion. Remember, there is no right or wrong answers. When you are finished, simply return the worksheet to the researcher present in the classroom. Thank you.

Self-Efficacy Scale (SES)

General Self Efficacy (GSE) Subscale					
Question	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
When I make plans, I am certain I can make them work.					
One of my problems is that I cannot get down to work when I should.					
If I can't do a job the first time, I keep trying until I can.					
When I set important goals for myself, I rarely achieve them.					
I give up on things before completing them.					
I avoid facing difficulties.					
If something looks too complicated, I will not even bother to try it.					
When I have something unpleasant to do, I stick to it until I finish it.					
When I decide to do something, I go right to work on it.					
When trying to learn something new, I soon give up if I am not initially successful.					

Question	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
When unexpected problems occur, I don't handle them well.					
I avoid trying to learn new things when they look too difficult to me.					
Failure just makes me try harder.					
I feel insecure about my ability to do things.					
I am a self reliant person.					
I give up easily.					
I do not seem capable of dealing with most problems that come up in life.					
Social Self-Efficacy (SSE) Subscale					
It is difficult for me to make new friends.					
If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.					
If I meet someone interesting who is hard to make friends with, I'll soon stop trying to make friends with that person.					
When I'm trying to become friends with someone who seems uninterested at first, I don't give up easily.					
I do not handle myself well in social gatherings.					
I have acquired my friends through my personal abilities at making friends.					

APPENDIX B

Men's Trip Application

Name _____ Date _____

The theme of this trip is "Journey and Discovery". As we journey through the canyon to discover unique aspects of the desert canyon environment, we will also discover unique aspects of our internal environments. Students will be expected to carry their own personal gear, group gear such as stoves, food, first aid equipment, and at least two quarters of water per person as they hike through the difficult terrain encountered in the canyon. Additionally, each student will carry a journal with readings and blank pages for written work. Each evening after dinner and camp cleanup, an evening meeting will be held. We will discuss issues pertinent to men in the New Millennium.

1. Why are you applying for the trip?

2. What do you expect to learn from participating on this trip?

3. Have you had backpacking experience? If so, describe it?

4. If one of the people you are hiking with says that they are too exhausted to continue and sits down on the trail refusing to move, what would you do?

5. How do you resolve conflict?

6. Have you ever been in a crisis situation? How did you handle it?

7. What team or group experiences have you had before this trip?

8. How do you feel about having to stay with the group and being cooperative?

9. Are you willing to meet before and after trip for a few times to prepare and process the experience?

10. What do you have to offer to the group if you are chosen for the trip?

11. List three personal strengths.

12. How could you be a leader on the trip?

13. How would you handle seeing another student doing drugs or breaking another major rule on the trip? Can you agree to the following: If any student is caught with any illegal substance, the entire group will turn around and come back to Denver.

14. What excites you most about going on the trip?

15. What are your biggest concerns about going on the trip? What will be your biggest struggle on the trip?

16. Identify 3 personal goals for the trip that you are willing to discuss during evening group?

17. When have you been away from home before and for how long?

18. How do you plan to pay for this trip?

19. List all medications that you are currently taking and any significant medical/allergy issues (examples asthma, bee sting, etc...).

20. Finally, summarize why you should be selected to go on the 2005 Men's Trip.

APPENDIX C

“I” Team Data Collection

First Survey: February 23, 24 (All Programs) * Beginning of pre-adventure stage immediately following first survey (Ranch, Manor, Cottage ONLY).

* Pre-adventure phase begins directly after first data collection/survey. Trip promotion (video, pump up, Q & A etc...) and distributions of applications follow the survey on day 1. Interviews, selection of participants w/ team input, notification/celebration (posting of list, staff acknowledgements etc...) and the initial participant meeting make up remaining components completed during following weeks. Pre-adventure phase ends w/ second data collection/survey.

First Survey:

Wednesday Feb. 23 = Ranch 10:00 AM
Wednesday Feb. 23 = Cottage 11: 00 AM
Thursday Feb. 24 = Outback 9:40 AM
Thursday Feb. 24 = Estate 10:45 AM
Thursday Feb. 24 = Manor 11:40 AM

Trip Interviews: February 28- March 4 (Manor, Cottage and Ranch)

Ranch = Applications due March 2
Cottage = Applications due March 2
Manor = Applications due March 4

Trip/Participant Selection: March 7-11 (Manor, Cottage and Ranch)

Ranch = Student notification March 7
Cottage = Student notification March 8
Manor = Student notification March 10

Second Survey: March 14-18 (no 16th) All Programs

Tuesday March 15 = Cottage 10:00 AM
Tuesday March 15 = Manor 11:15 AM
Thursday March 17 = Outback 9:40 AM
Thursday March 17 = Ranch 10:15 AM
Thursday March 17 = Estate 11:00 AM

Equipment Check: March 18-20 (Manor, Cottage and Ranch)

Manor = Friday March 18
Cottage = Sunday March 20
Ranch = Saturday March 19

Trip/Adventure: March 21-25 (Manor, Cottage and Ranch)

Third Survey: April 6 and 7 All Programs

Wednesday April 6 = Ranch 10:00AM
Wednesday April 6 = Cottage 11:00AM
Thursday April 7 = Outback 9:40AM
Thursday April 7 = Estate 10:45 AM
Thursday April 7 = Manor 11:40 AM

APPENDIX D

Directions

Please read word for word:

The purpose of this study is to explore the impact of adventure education on student growth, both academic and personal. The handout in front of you contains several questions about yourself. The purpose of the handout is to help us gain information about our program. It is important to note that there is no right or wrong answers. Begin by reading and printing your name, the date, and your “I” Team program on the first page. Then carefully answer the remaining questions by checking the box that best applies to you, today. When finished, please raise your hand and a staff member will briefly check your information. Please be patient and thank you. Your participation is optional. You may choose not to participate, and you may stop at any time if you feel you do not want to complete the handout.

APPENDIX E

Self-Efficacy Behavior Based Adventure Education Skill Development Checklist

Name:

Identification number:

Identification number:

Question	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Performs tent and camp set up tasks.					
Gives effort in hiking experience.					
Performs water filtering task.					
Performs cook stove set up task.					
Prepares meals when designated.					
Cleans up when designated.					
Participates as team member in cooking group.					
Participates as team member in larger group.					
Models equipment set up to others less familiar and/or comfortable with experience.					

Question	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Participates and is respectful in group circles.					
Participates in group processing activities.					
Shares, listens, and discusses individual goals with/in group.					
Displays positive team attitude.					
Verbally encourages others who may be struggling.					
Shows empathy towards others in group.					
Offers suggestions in situations rather than complain.					
Participates in group trust building exercises.					

Comments (Please Print):

APPENDIX F

Parental and Student Consent for Student to Participate in a Research Study Colorado State University

TITLE OF STUDY: The Impact of an Experiential/Adventure Intervention on Male Adolescents with Special Needs.

PRINCIPAL INVESTIGATOR: Victoria Buchan PhD

CO-PRINCIPAL INVESTIGATOR: Jim Harris MSW

WHY ARE YOU (YOUR SON) BEING INVITED TO TAKE PART IN THIS RESEARCH?

The number of special needs, high school age students who stay in school and graduate is low and needs attention. The "I" Team programs has been working for over 30 years in support of these students and families. Currently, male students make up approximately 70% of the enrollment at the "I" Team programs. As such, you or your son's experience and perspective are critically important. The primary reason you (or your son, with your permission if under age 18,) are being invited to participate is to better understand interventions that work, or don't.

WHO IS DOING THE STUDY?

You (Your son) are being invited to participate in a dissertation research project conducted by Jim Harris, a doctoral student in the Colorado State University's School of Education. The project is conducted under the direction of Professor Vicky Buchan, Colorado State University, School of Social Work, Fort Collins, CO. Any comments, questions, or concerns about the study may be addressed by contacting the researcher at (303) 743 3670 ext. 5110 or Dr. Buchan at (970) 491-5211.

WHAT IS THE PURPOSE OF THIS STUDY?

The research study being conducted involves exploring the impact of educational interventions with students. The main interest of the researcher is exploring experiential or adventure education programming and its impact on student growth, both personal and academic.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

If you (your son) decide to participate, you (your son) will be asked to complete three separate questionnaires each lasting approximately 15 minutes. The questionnaires will be administered on three separate occasions between February 23 and April 6, 2005. Questionnaires will only be administered during teacher-approved time at the students' home school. Minimal instruction time will be sacrificed during this study. The student's self-efficacy behaviors may also be rated by a staff member. The student's participation is at all times voluntary and you have the right to withdraw consent or discontinue participation at any time and for any reason.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There are no foreseeable, additional risks associated with participation or allowing you (your son) to participate in the study separate from regular program participation. However, it is not possible to identify all potential risks in research procedures, but the researchers have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

WILL YOU (YOUR SON) BENEFIT FROM TAKING PART IN THIS STUDY?

There are no direct benefits to you (your son) by participation in this study, but student participation will help your educational community better understand experiential learning with male adolescent students.

DO YOU (YOUR SON) HAVE TO TAKE PART IN THE STUDY?

Student participation in this research is voluntary. If you (or your son) decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

Page__ of__ Parent/participant initials _____ Date _____

WHO WILL SEE THE INFORMATION THAT YOU (YOUR SON) GIVE(S)?

Individual participants will at no time be singled out for identification purposes in the research. Privacy will be strictly maintained in all written data resulting from this study. Pseudonyms will be used for both school names and the names of all individuals involved in the study. All research will be stored and safeguarded at the researcher's office; no one except the researchers will have access to any of the raw data. The student's, teachers', and school's identity will be kept completely confidential at all times.

WHAT HAPPENS IF A STUDENT IS INJURED BECAUSE OF THE RESEARCH?

The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

WHAT IF YOU (YOUR SON) HAVE QUESTIONS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Jim Harris at 303 743-3670 ext. 5110. If you have any questions about your rights as a volunteer in this research, contact Celia Walker, Director of Regulatory Compliance, at 970-491-1553. We will provide you a copy of this consent form.

WHAT ELSE DO YOU (YOUR SON) NEED TO KNOW?

Your signature acknowledges that you have been read or read the information stated and willingly sign this consent form. Your signature also acknowledges that you will be receiving a copy of this consent form (numbering two pages) in a timely manner.

PARTICIPANT SIGNATURE

Your signature acknowledges that you have read or been read the information stated and willingly sign this consent form. Your signature also acknowledges that you will be receiving a copy of this consent form (numbering two pages) in a timely manner.

Signature of person agreeing to take part in the study

Date

Printed name of person agreeing to take part in the study

Name of person providing information to participant

Date

Signature of research staff

PARENTAL SIGNATURE FOR MINOR

As parent or guardian I authorize _____ (print name) to become a participant for the described research. The nature and general purpose of the project have been satisfactorily explained to me by _____ and I am satisfied that proper precautions will be observed.

Student's date of birth

Parent/Guardian name (printed)

Parent/Guardian signature

Date

Page__ of__ Parent/participant initials _____ Date _____

APPENDIX G

The "I" Team (building name) has been selected to participate in a study measuring the impact of adventure education on male student self-efficacy, academic achievement, and personal growth. This study is essential in our quest to better serve those in need through the identification of interventions that work or don't. No student will be allowed to participate without written consent. Students 18-21 years old may sign and consent on their own behalf where students 16-17 need a parent signature. The following is an script/outline that should be used to describe the project to participants and/or their parent, guardian etc...thereby assisting in the written consent process. On behalf of "I" Team programming, thank you for your support.

TITLE OF STUDY: The Impact of an Experiential/Adventure Intervention on Male Adolescents with Special Needs.

WHY ARE YOU (YOUR SON) BEING INVITED TO TAKE PART IN THIS RESEARCH?

The "I" Team (name of specific team here) needs your help. The number of special needs, high school age students who stay in school and graduate is low and needs attention. The "I" Team programs has been working for over 30 years in support of these students and families. Currently, male students make up approximately 70% of the enrollment at the "I" Team programs. As such, you or your son's experience and perspective are critically important. The primary reason you (or your son, with your permission if under age 18,) are being invited to participate is to better understand interventions that work, or don't.

WHAT IS THE PURPOSE OF THIS STUDY?

The research study being conducted involves exploring the impact of educational interventions with students. The main interest of the researcher is exploring experiential or adventure education programming and its impact on student growth, both personal and academic.

WHO IS DOING THE STUDY?

The research project is being conducted by Jim Harris, "I" Team Cottage Social Worker and doctoral student at Colorado State University. He can be contacted at 303 743-3670 ext. 5110 if you have additional questions. Further, the project is under the direction of Professor Vicky Buchan, Colorado State University, School of Social Work.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The study entails the completion of three separate questionnaires each lasting approximately 15 minutes. The questionnaires will be administered on three

separate occasions between February 23 and April 6, 2005. Questionnaires will only be administered during teacher-approved time at the students' home school. Minimal instruction time will be sacrificed during this study. The student's self-efficacy behaviors may also be rated by a staff member. The student's participation is at all times voluntary and you have the right to withdraw consent or discontinue participation at any time and for any reason.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There are no foreseeable, additional risks associated with participation or allowing you (your son) to participate in the study separate from regular program participation. However, it is not possible to identify all potential risks in research procedures, but the researchers have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

DO YOU (YOUR SON) HAVE TO TAKE PART IN THE STUDY?

Student participation in this research is voluntary. If you (or your son) decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT YOU (YOUR SON) GIVE(S)?

Individual participants will at no time be singled out for identification purposes in the research. Privacy will be strictly maintained in all written data resulting from this study. Pseudonyms will be used for both school names and the names of all individuals involved in the study. All research will be stored and safeguarded at the researcher's office; no one except the researchers will have access to any of the raw data. The student's, teachers', and school's identity will be kept completely confidential at all times.

APPENDIX H

Utah Adventure

Trip Environment: Mid-eastern, high desert area of Utah also commonly known as the Colorado Plateau or Canyonlands country. The Canyonlands region is beautiful but unforgiving. This particular adventure trip was scheduled in late March 2005 in order to avoid the brutal heat that can begin as early as April and benefit from the dwindling water supply that can vanish by late March. Backpacking in the Canyonlands without a reliable water source is dangerous while packing water in your backpack can be physically and mentally exhausting. Water filters are packed with the hopes of replenishing supplies and reducing overall pack weight, but as the rangers say “there is never a guarantee” that water will be found on the trail. The vistas in the Canyonlands are spectacular. Yet, the sandstone that abounds in the region can quickly become slick and treacherous with a downpour from a fast moving thunderstorm making hiking precarious especially with a group of inexperienced students. The Canyonlands is the place of the puma, raven, deer, and the periodic hiker/backpacker. It is also a place of incredible adventure when the adventurers’ are well prepared and up to the challenge.

Participants: Students ranged in age from 16 to 21 and included mostly juniors and seniors seeking graduation. Special need categories were fourfold. The first, Emotional Disabled includes students with issues related to bi-polar, depression, and oppositional defiant type disorders to name several. The second is referred to as Perceptual/Communicative primarily covering learning disorder type issues. In this setting, the third category is Physical Disabled and comprises students identified with attention deficit or hyperactivity disorders. Lastly, Speech/Language is made up of students who have struggled with verbal communication to a level of impairment.

Trip Leaders: In total, there were seven staff members distributed among the three intervention programs: Ranch (2), Manor (2), and Cottage (3). The three leaders (one per group) had significant experience in working with special need students, observation, assessment, and evaluation. Professionally, the leaders included a Ph. D level, special education teacher with 20 + years of experiential instruction (Ranch); a Masters level special education teacher and previous team leader with approximately 12 years of adventure experience (Manor); and the researcher for this study (Cottage). Each additional staff had some previous outdoor experience. Further, extensive communication among the trip staff was initiated and nurtured so that the three intervention groups could closely replicate the adventure processes even though in separate but similar sites.

Hike/Camping: Adventure students and staff camped in backpacking type tents for all four nights of the trip. Strenuous to moderate hiking was conducted on three of the five-day trip with full backpacks weighing about 40-60 pounds. Students and staff hiked out from the designated trailheads on day-two of the trip and covered between 5-6 miles ending with set-up in the designated backcountry campsites. On day three, another 6 miles was hiked taking the group(s) farther away from the trailheads and vehicles. Day

four was spent returning to the trailheads that were another 5-6 miles. In total, approximately 15 miles were covered in a looping fashion so adventure students hiked and were exposed to new terrain for all segments while also heightening the sense of stepping outside one's comfort zone.

Trip Theme: In terms of the Utah adventure trip, the general theme was defining and understanding male specific issues. Accordingly, each adventure student was asked to identify personal and academic goals related to the trip that would in turn be discussed at processing meetings. Over the course of the four processing groups (evenings) students were asked to comment on individual goals established prior to trip departure. Further, trip leaders identified and facilitated discussions regarding the general theme including topics such as: "What is a man?" "What is a relationship?" "What is a family?" "What does it mean to be human?" Throughout the process, relevant readings, goals, and personal experiences (both staff and students) were interwoven into the adventure learning experience.

Journal: Participants also completed daily journal work (both factual and reflective type assignments) as well as attended processing, reflection and analysis group meetings facilitated by the trip leaders. In terms of the Utah adventure trip the general theme was men's issues with specific reading assignments. Adventure students were not only responsible for reading the material but also needed to participate in a discussion during evening group. Further, the journal also included academic components related to culture, history, and the environment. Examples of journal components included describing the difference between "cryptobiotic soil" and "potholes" within the high desert, canyonlands ecosystem; and commenting on the previous inhabitants of the "Colorado Plateau" region. Individuals who successfully completed the trip journal by day-five received credit. Students displaying unsatisfactory participation received no credit for the trip.

Pre-Trip Process: For this study, approximately four weeks prior to the adventure trip departure date, pre-adventure staging activities commenced after administration of the pretest. Within several days, all male students from the designated intervention group or sub-groups (Cottage, Manor, and Ranch) viewed a promotional video and other informative material in their separate but similar sites while being encouraged to participate. At that time, applications were distributed. Over the next week, trip leaders from each intervention program processed applications and conducted individual interviews with students in their buildings. Ultimately, "I" Team staff from each building had input into the final selections for students in their programs. Upon making the selection, trip leaders from each of the three intervention programs held pre-adventure meetings in their sites to discuss business type issues with adventure group students encouraging sound preparation. One to three days prior to departure an equipment check meeting was held in which all students had hands on experience with tent set-up/break down, stove and water filter operation, food distribution, and verification of appropriate gear.

Trip Process: In the field, a predetermined itinerary (see Table 3.1) outlining general process guidelines was followed by each of the three programs that made up the overall intervention group. Further, it is important to note that students from the three intervention programs (Cottage, $n = 10$; Manor, $n = 10$; and Ranch, $n = 9$) did not interact during any part of the process but did encounter very similar protocol regarding all aspects of the intervention down to going to the same geographical region - mid-eastern, high desert area of Utah (separate locations) during the same week in late March, 2005.

Cost/Travel: Cost per students was approximately \$120 and included all food, transportation, and lodging. A school supplied small bus (3) with a capacity of 15 was utilized. Travel time was approximately 6-8 hours to the trailhead from which the hiking took place.