ADVENTURE EDUCATION AND SELF-CONCEPT: THE EFFECTS
OF TIME DURATION ON THE EXPERIENCE

A Thesis
Presented
to the Faculty of
California State University, Chico

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Recreation Administration

by
Jeremy Jostad
Fall 2009
ADVENTURE EDUCATION AND SELF-CONCEPT: THE EFFECTS
OF TIME DURATION ON THE EXPERIENCE

A Thesis

by

Jeremy Jostad

Fall 2009

APPROVED BY THE INTERIM DEAN OF THE SCHOOL OF
GRADUATE, INTERNATIONAL, AND INTERDISCIPLINARY STUDIES:

______________________________
Mark J. Morlock, Ph.D.

APPROVED BY THE GRADUATE ADVISORY COMMITTEE:

______________________________
Morgan W. Geddie, Ed.D.
Graduate Coordinator

______________________________
Laura J. McLachlin, Ph.D., Chair

______________________________
Richard Gitelson, Ph.D.

______________________________
Reid Cross, Ed.D.
ACKNOWLEDGMENTS

This journey through graduate school has been one of the most frustrating, yet fulfilling experiences of my life. If it were not for some key people and experiences in this process, I would not be where I am now.

To my loving parents and family, for always supporting me and giving me the encouragement to follow my heart. To my professors, who believed in me when I struggled to believe in myself, I thank you.

I also want to extend my gratitude to my committee for taking the time to work with me on this study. Rich, who extensively helped me make sense and analyze my data. To Reid, for teaching me so much of what it means to be an outdoor leader and giving me the opportunity to grow professionally and personally. To Laura McLachlin, who was my unexpected chair and an incredible blessing. Thank you so much for your calming nature and your ability to communicate with me like a fellow human being.

My thanks goes out to The National Outdoor Leadership School, John Gookin, and Jamie O’Donnell. Without these individuals this study would not have been possible.

Last but not least, I want to thank the wilderness. I would not be the person I am today without the lessons learned from my experiences.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgments</th>
<th>iii</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>vii</td>
</tr>
<tr>
<td>Abstract</td>
<td>viii</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>I. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Need for the Study</td>
<td>2</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>3</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>3</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>3</td>
</tr>
<tr>
<td>Research Questions</td>
<td>4</td>
</tr>
<tr>
<td>II. Literature Review</td>
<td>6</td>
</tr>
<tr>
<td>History of Adventure Education</td>
<td>8</td>
</tr>
<tr>
<td>Evolution of Research Methods in Adventure Education</td>
<td>11</td>
</tr>
<tr>
<td>Self-Concept</td>
<td>13</td>
</tr>
<tr>
<td>Factors Involved with Outcomes in Adventure Education</td>
<td>18</td>
</tr>
<tr>
<td>Summary</td>
<td>24</td>
</tr>
<tr>
<td>III. Methodology</td>
<td>26</td>
</tr>
<tr>
<td>Research Design</td>
<td>27</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>27</td>
</tr>
<tr>
<td>Design of Data Collection</td>
<td>29</td>
</tr>
<tr>
<td>Analysis</td>
<td>30</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>IV. Findings and Results</td>
<td>32</td>
</tr>
<tr>
<td>Descriptive Statistics</td>
<td>32</td>
</tr>
<tr>
<td>Validity Testing</td>
<td>35</td>
</tr>
<tr>
<td>Tests of Research Questions</td>
<td>38</td>
</tr>
<tr>
<td>Summary of Results</td>
<td>44</td>
</tr>
<tr>
<td>V. Conclusions, Limitations, and Recommendations</td>
<td>46</td>
</tr>
<tr>
<td>Conclusions</td>
<td>46</td>
</tr>
<tr>
<td>Limitations</td>
<td>49</td>
</tr>
<tr>
<td>Recommendations</td>
<td>50</td>
</tr>
<tr>
<td>References</td>
<td>52</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean Age, Standard Deviations, and Sex for All Courses</td>
<td>34</td>
</tr>
<tr>
<td>2. Previous Wilderness Experience of All Courses</td>
<td>35</td>
</tr>
<tr>
<td>3. Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (14-Day Courses)</td>
<td>39</td>
</tr>
<tr>
<td>4. Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (30-Day Courses)</td>
<td>40</td>
</tr>
<tr>
<td>5. Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (Semester Courses)</td>
<td>41</td>
</tr>
<tr>
<td>6. Change in Self-Concept Domains and Total Self-Concept T-Scores for All Courses</td>
<td>42</td>
</tr>
<tr>
<td>7. ANOVA of Change in Self-Concept Between the Three Groups</td>
<td>42</td>
</tr>
<tr>
<td>8. Pearson’s Correlation Coefficient of Change in Self-Concept in Relation to Course Variables</td>
<td>45</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pre and Post-Test T-Score Values for All Courses</td>
<td>43</td>
</tr>
</tbody>
</table>
ABSTRACT

ADVENTURE EDUCATION AND SELF-CONCEPT: THE EFFECTS OF TIME DURATION ON THE EXPERIENCE

by

Jeremy Jostad

Master of Arts in Recreation Administration

California State University, Chico

Fall 2009

The purpose of this study was to investigate whether the length of adventure education courses have an effect on the participant’s change in self-concept. Factors affecting this change such as student group, geographical terrain, and instructor team variables were studied. Three course durations (14-day, 30-day, and semester long (68-76 days)) from The National Outdoor Leadership School were investigated. A total of 105 subjects over twelve courses were studied with four courses from each time duration. There were 34 subjects from 14-day courses, 43 subjects from 30-day courses, and 28 subjects from semester courses. The Tennessee Self-Concept Scale: Second Edition was administered the first 24 hours of the course and the last 24 hours of the course.

The results of the study show that there was a significant difference at the p < .05 level between the 30-day and semester courses. Despite showing statistical
significance, the 30-day course was the only course with an increase in self-concept ($M = 0.9$), while there was a slight decrease for the 14-day courses ($M = -1.1$) and semester long courses ($M = -1.4$). No correlations were present between the change in self-concept and student group, geographical terrain, and instructor team variables.

Future research should include a scientific qualitative component in addition to the quantitative results. It is recommended to look at the change in self-concept from a longitudinal aspect and see if self-concept changes over time after a course. Additional research on the mechanisms that affect change in adventure education is in need of further study.
CHAPTER I

INTRODUCTION

According to the Wilderness Act of 1964, wilderness is defined as “an area where the earth and community of life are untrammeled by man, where man himself is a visitor who does not remain.” This act was an important step in the history of our government. For the first time we recognized that the natural environment holds intrinsic value to its visitors. Because of this act, millions of acres of pristine wilderness have been left intact for people to explore.

The wilderness environment supplies both tangible and intrinsic rewards that are sought by people for a variety of reasons. Some use the natural environment to escape from day to day life as a means to find a sense of tranquility. Others enjoy the pursuit of physical challenges and achievement through rock climbing or hiking. There are also those who simply enjoy the aesthetics of the natural world. Whatever the draw, these experiences leave an imprint on the lives of the visitors.

The wilderness environment is a catalyst for learning. It can provide an opportunity to get away from daily life to focus on ourselves as well as an avenue of personal challenge and growth. The process of learning and discovering evolves with many experiences throughout a lifetime. How people come to learn about themselves and their own abilities is important to educators, psychologists, and society. Self-concept is the encompassing term used to describe a person’s comprehensive understanding or
feeling of him or herself. There are multiple dimensions within self-concept, however, this research focuses on self-concept as a whole and look at an individuals’ overall self-concept.

Traditional teaching environments, such as the classroom setting, have not always captured the development of the self, nor have they always been effective avenues toward learning practical applications. The use of the natural environment and the idea of learning through experience has been a philosophical ideal since the minds of Plato and Aristotle. However, its practical use and full understanding have really just begun in the last half-century.

Need for the Study

Adventure education has shown to have positive impacts on students in various ways. One major impact has been the change in self-concept participants experience because of an adventure education course. Studies show that adventure education courses increase a participant’s self-concept (Cason & Gillis, 1994; Finkenberg, Shows, & DiNucci, 1994; Gillett, Thomas, Skok, & McLaughlin, 1991; Hattie, Marsh, Neill, & Richards, 1997; Hazelworth & Wilson, 1990). What has not been studied is the timeframe in which the increase of self-concept begins to level off. More importantly, very few studies have looked at course durations exceeding 30 days. There is a need for this study to better understand the changes in self-concept and see if there is a point that the change in self-concept begins to level off. This study could also help programs better design courses if they knew there were or were not significant changes beyond a 30-day course.
Purpose of the Study

The purpose of this study is to investigate whether the duration of an adventure education course influences the development of a participant’s self-concept. Courses from the National Outdoor Leadership School (NOLS) were used in this study. The different course durations examined were 14-day, 30-day, and semester long (68-76 days) courses. This study also looked at factors such as student group variables, geographic terrain variables, and instructor team variables that may influence the change in self-concept.

Limitations of the Study

1. There are certain limitations and factors that cannot be controlled which are inherent to most adventure education courses. These include weather, terrain, student interactions, and the differences between instructors. The difference between these factors may have an influence on the change of a student’s self-concept.

2. This study used NOLS courses from three different branches; the Yukon, Alaska, and the Rocky Mountain branch. Because of this, the survey was administered by different individuals. A written dialogue was created for each survey administrator and should have been consistent throughout; however, this difference could have an effect on participants’ responses.

Definition of Terms

Adventure Education

The interpersonal and intrapersonal relationships among individuals such as spirituality, confidence, and self-concept (Priest & Gass, 1997).
Geographic Terrain Variable

The perception of how challenging the terrain was during the course and if the student enjoyed this terrain, measured by the NOLS Course Quality Survey.

Instructor Team Variable

The perception of how well the instructors worked together and supported the students learning, measured by the NOLS Course Quality Survey.

Self-Concept

The mental image one creates about oneself (Klint, 1990, p. 164).

Student Group Variable

The perception of how the student worked within the group and how the group worked as a team, measured by the NOLS Course Quality Survey.

Wilderness

An area where the earth and community of life are untrammeled by man, where man himself is a visitor who does not remain (Wilderness Act of 1964, 1964).

Research Questions

1. Will there be a significant difference in students’ change in self-concept between adventure education courses of 14-days, 30-days, and semester long (68-76 days) courses?

2. Is there a relationship between a change in student self-concept and the perception of the student group?

3. Is there a relationship between a change in student self-concept and the perception of the geographic terrain?
4. Is there a relationship between a change in student self-concept and the perception of the instructor team?
CHAPTER II

LITERATURE REVIEW

Outdoor education, environmental education, experiential education and adventure education are some of the many terms used to describe learning in an outdoor environment. They are often used synonymously; though there are slight differences between the definitions of these terms. For example, outdoor education places an emphasis on the interactions between the natural environment and the students while environmental education is focused on the relationships between society and the natural resources of an ecosystem (Priest & Gass, 1997). Experiential education is the process through which people learn from “direct experience and focused reflection in order to increase knowledge, develop skills and clarify values” (Association for Experiential Education, 2007, ¶ 2). The key elements within this definition are direct experience and reflection. Both are essential to the outdoor educational process and outcomes of learning. While this definition provides a foundation for the experiential process, Priest (1990) believes the term adventure education emphasizes the interpersonal and intrapersonal relationships among individuals such as spirituality, confidence, and self-concept. These relationships have been found to be of importance within adventure education because they are believed to be positively changed. The term “adventure education” will be used from this point forward to encapsulate the notion of this type of learning and experience.
A strong argument for the introduction of adventure education into mainstream curriculum is the belief that this method of teaching positively affects a student’s self-concept. Ford and Blanchard (1993) believe there are physical, mental, emotional and psychological-sociological values that persist in adventure education. Self-concept has been seen as a transformational aspect of the psychological benefits in adventure education. This understanding has provided a strong basis for adventure programs and has been a major topic of research interest and professional practice. Maximizing the potential for this kind of growth is important and can be seen to help an individual throughout their lifetime. This study looks closely at self-concept and how adventure education can enhance it.

There are a number of variables that have an effect on the outcomes of adventure education. Length or duration is one factor that has been found to assist in the development of self-concept within adventure education. Hattie, Marsh, Neill, and Richards (1997) and Cason and Gillis (1994) found that a longer program duration produced more positive results in participants’ self-concept than shorter ones. However, there has been a lack of research studying the optimal amount of time that would provide the most benefits toward self-concept in the adventure education experience. Sibthorp, Paisley and Gookin (2007) contend that there must be a point in which learning would start to level off, making a longer program unnecessary when based on a monetary or time commitment basis.

This study begins to fill this knowledge gap. This literature review presents a historical overview of adventure education, followed by a discussion of the research addressing self-concept in relation to adventure education. Further, the author presents
various factors that contribute to the effects of an adventure education experience with an emphasis on the duration of the program.

History of Adventure Education

The philosophical foundations of adventure education can be traced to ancient Greece. Two of the main philosophers of the time, Plato and Aristotle, advocated for learning and understanding through experience. They believed the best way to train young boys and girls for leadership was to “experience it directly as a young person” (Hunt, 1990, p. 116). An influential educational psychologist of the late 19th century, William James expanded this notion to emphasize the use of nature as the medium for these experiences (Roth, 1969). He believed in the idea that adventure could be used as an avenue toward moral education and the teaching of virtue in individuals (Hunt, 1990). More recently, John Dewey, a leader in the Progressive Educational Movement in the 1930s, believed growth must be more than just intellectual; he believed traditional education was missing the physical and moral components that were so critical to personal growth (Kraft, 1990). He also stressed that social growth was possible with adventure education and thought learning contributed to the whole of society and should not be a selfish pursuit. While these ideas reflect a common theme, it must be stressed that adventure is used as a means to an end and not the end in itself (Hunt, 1990). Therefore, adventure is used as an avenue for personal development.

These principles had a strong footing for application in the 1940s when Kurt Hahn introduced these ideas to an applied setting. Hahn is regarded as the founder of modern day adventure education. During World War II, British ships were being
torpedoed by German U-boats and the sailors were left to survive in the open seas. The younger, less experienced sailors were dying, while the older and more experienced sailors were surviving even though they were not as physically strong. It was thought that the younger seamen would panic and soon become exhausted in the cold waters of the Atlantic Ocean leading them to give up. The more experienced sailors stayed together in groups and worked through these challenges and often were able to survive. This puzzling finding led to the notion of using challenging situations in the natural environment to promote personal and social development.

Hahn was commissioned to provide a course that would help these sailors survive and inspire a sense of determination to live through these situations. Hahn’s educational philosophy was grounded in much of the same theory of Plato, Aristotle, and James. He believed in the possibilities of personal development through physical, social and environmental means (Hunt, 1990). Thus, the first Outward Bound (OB) School in Britain was formed by Hahn in 1941 to produce stronger confidence and self-image among individuals through the testing of different experiences. The concept of learning through experience and using the natural environment as a catalyst started to take hold with Hahn’s efforts.

In 1961, the first OB school was established in the United States in Colorado, using such activities as rock climbing, mountaineering and backpacking to teach the fundamental principles of personal and social development. OB was not started to teach people how to live in the wilderness; rather its aim was to build character, create better people and provide personal discovery (James, 1995). These objectives became a fundamental goal within most adventure education programs as the benefits of these
types of experiences began to be understood. It was becoming more apparent that adventure education could provide learning in the basics of education such as science and social studies; however, there was also the opportunity for personal and social growth.

As the efficacy of adventure education started to become more evident in the United States, there came a realization that competent leaders were needed to facilitate this process. Paul Petzoldt realized this importance as a young man while climbing the Grand Teton after a near fatal accident. It was apparent that without proper training, people could easily lose their lives while traveling in the backcountry. He pursued learning more about becoming an effective outdoor leader over his lifetime and eventually began the National Outdoor Leadership School (NOLS) in 1965 (Bachert, 1990). This program was designed to teach the fundamentals of leading people into the wilderness with an emphasis toward wilderness, education, safety, community, and leadership (Bachert, 1990). NOLS also uses the adventure education philosophy, offering courses with activities such as backpacking, rock climbing, rafting, mountaineering and sea kayaking.

Although this type of learning was being used throughout the United States, it was not being accepted by everyone as a foundation to education. Some viewed education as the process of learning through reading and understanding only, while others emphasized the development of the entire individual. This difference in opinion has continued to pervade and undermine the possibilities that are available within adventure education. In the 1980s, there was a call for education to “get back to the basics” and return to traditional education (Kraft, 1990, p. 179). As more students continue to
struggle in our traditional education system, experiential and adventure education will continue on into the 21st century with a strong footing.

There are a number of different programs around the world that have embraced the concept of adventure education. The growth of these programs over the past thirty years has been substantial and a testament to their effectiveness. While OB and NOLS are two of the most recognized programs in the world, the field is expanding to university settings as well as the private sector. The activities and structure of the various programs may be different; however, the primary goals remain consistent: the use of the natural environment and the experiential process as an instrument toward personal and social development. Self-concept has been seen as one personal development that has the ability to change due to adventure education courses.

Evolution of Research Methods in Adventure Education

Research in the area of adventure education and self-concept has gone through a series of changes since its beginnings in the early 1970s. The earliest research involved simple speeches from past participants, descriptions of the programs from the providers, and the justification that it must be working due to the maintenance or increasing of enrollment. The early studies conducted on adventure education in the 1970s looked solely at the outcomes of the experience and used mostly qualitative methods such as interviews and case studies to support their claims (Hattie, Marsh, Neill, & Richards, 1997). The research was not systematic and there was little scientific grounding. Most researchers held a constructivist point of view; they had a familiar background with
adventure education and the way in which they conducted their studies was quite subjective (Hattie et al., 1997).

As scrutiny of this form of research came about, a post-positivist approach emerged which used a pre and post-test to measure the outcomes at the end of a program. The emphasis during this time was simply the outcomes and measurements that justified the efficacy of adventure education programs. From a scientific point of view, the evaluation designs needed improvement; however, the majority of results in these studies pointed to an improvement in self-concept (Warner, 1990).

The claim that adventure education programs were effective was considered valid, but the scientific groundings needed improvement. By the mid 1980s, theoretical foundations started being used and a more stringent scientific approach was taking hold. A few of the theories that started being used were the systems framework theory, Outward Bound process model, means-end theory and the learning combination lock. The Outward Bound process model is a series of seven processes to explain the apparent power and effects of Outward Bound programs. The learning combination lock uses three domains (external environment, sensors, and internal environment) to show the various factors that can “unlock” the potential in students. Along with these foundations, researchers began making their studies more scientific by extending methods far past the pre and post-test.

Due to the complexities of studying a large population in adventure education, finding statistical significance can be difficult. “Given the small samples in much of adventure program research, the resulting power must of necessity be low”; which can be frustrating for researchers when testing for statistical significance (Hattie, Marsh, Neill,
& Richards, 1997, p. 49). The method of using a meta-analysis has become more prevalent in the research because of the ability to synthesize a large number of studies into one. This method also helps find greater statistical significance than smaller scale studies. Researchers also started looking not solely on the outcomes, but the mechanisms that were producing the change within the experience. This was an important step in the research which provided a more holistic examination of the process.

The research in adventure education finds itself at the beginning of a new path. While researchers should not ignore the qualitative aspect that can be of value to this area, it needs to be more detailed and methodical (Hattie, Marsh, Neill, & Richards, 1997). Garst, Scheider and Baker (2001) found that by implementing only quantitative methods, “researchers may miss the influence of outdoor adventure programs” (p. 42). Combining qualitative and quantitative approaches has been used sparingly in the past, but makes for a thorough method of inquiry for adventure education studies.

Self-Concept

There are a number of outcomes that have been achieved through adventure education. Self-concept is one that has received a lot of attention from researchers because of the important role it plays in a person’s life.

Hattie, Marsh, Neill, and Richards (1997) discussed six main categories of outcomes from adventure education experiences: leadership, personality, interpersonal, academic, adventuresome and self-concept. Of these, self-concept is one of the most common outcomes derived from the adventure experience. A number of studies have looked into the development of self-concept and adventure education and have found
positive changes in the participants’ self-concepts (Cason & Gillis, 1994; Finkenberg, Shows, & DiNucci, 1994; Gillet, Thomas, Skok, & McLaughlin, 1991; Hattie et al., 1997, Hazelworth & Wilson, 1990). There are several factors that contribute to this overall effect, and each are discussed later in this literature review.

Self-concept refers to “the mental image one creates about oneself” (Klint, 1990, p. 164). This term has been used interchangeably with terms such as self-efficacy, self-confidence, self-esteem, and self-image, yet these meanings overlap each other in various ways. For example, James (1890) believed self-concept was linked to achievement, and saw that feelings of worthiness, achievements, and aspirations were central to the development of self-concept. Bandura (1977) explained that self-efficacy is about an individual’s belief of his or her own task accomplishment and ability levels. While these two ideas are similar in nature, there are inherent differences.

Self-concept is a multi-dimensional notion that has been viewed from a number of different frameworks. James (1890) believed that it contains four elements; the material self, the social self, the spiritual self, and the pure ego. Hattie (1992) reasoned that self-concept is centered in the cognitive domain, where an individual recognizes and addresses personal attributes. It consists not only of what we know about ourselves, but also “the interrelationships between the knower and the known” (Hattie, 1992, p. 35). This interrelationship is important for the knower to understand and recognize. It allows him or her to acknowledge certain aspects of the self that are considered important and create feelings and understanding by that relationship.

Our self-concepts, also referred to as conceptions, are the cognitive acknowledgements of our self, and can be viewed in terms of descriptions, expectations
and prescriptions (Hattie, 1992). This concept has been of particular importance to psychologists and educators. As the expansion of adventure education programs occurs, self-concept has become a major component and commonly sought outcome.

Cason and Gillis (1994) conducted a meta-analysis on adventure programs. This study was conducted to collectively justify the major findings in the field of adventure education and show the overall effectiveness of the programs. The adventure experiences ranged from college courses of only a couple days to three-week long courses. They looked at 43 studies and found an average effect size for all outcomes to be .31, while self-concept had an average of .34. The major factor that was a mediator between outcomes was trip length. Longer programs (20 days or longer) were shown to have a higher effect (.58) than shorter trip lengths (ten days or less) (.17). In addition to course length, other variables that affect adventure programming such as leadership style and participant demographics also were taken into account.

Many studies have been performed to examine the development of self-concept through adventure education. Researchers have used the Tennessee Self-Concept Scale to measure this change in self-concept. Hazelworth and Wilson (1990) performed a study using the TSCS in a pretest-posttest study, looking at the effects of a coed outdoor adventure camp on self-concept of teenage participants. The test was administered to 39 students the first day of the camp and again on the sixth day, after students had completed the skill development program of the camp. The researchers used a t-test to analyze their data and found the most significant changes in self-satisfaction, identity, and moral-ethical self-concept. The authors also noted that a camp session longer than 6 days would
have been more useful for evaluating significant changes in different areas of self-concept.

Finkenberg, Shows, and DiNucci (1994) also used the Tennessee Self-Concept Scale to study college men and women and their change in self-concept. The study consisted of 18 students in a semester-long adventure education class and a control group that consisted of 32 students enrolled in a general health class. The data was analyzed by using an Analysis of Covariance (ANCOVA) with the pre-test being the covariate. There were significant differences found between the two groups at the $p < .05$ level on total self-concept and self-concept domains of physical and social self-concept. The students who participated in the adventure education class had a significant increase in self-concept as compared to the control group.

Young and Steele (1990) claim that most studies have used the pretest-posttest method to acquire results about self-concept and adventure education. They argued that the most common weakness is by one-group designs and the fact that almost all subjects are pre-tested. The researchers investigated the results that would occur if groups were not exposed to the instrument before the treatment. They studied 184 participants in four college-level outdoor education courses to examine self-concept change after the course. Data were analyzed using analysis of variance, analysis of covariance, and t-test statistics. The results were consistent with most other studies, finding no significant changes between the groups exposed to the pretest and those who were not. There was an overall positive effect for self-concept among all participants in the four groups.

However, exactly how this outcome is achieved and the specific variables that are responsible for the changes in self-concept remain in question (Young & Steele,
1990). The mechanisms that were creating this change were not being empirically studied. Ewert (1984) used the term “educational black box” to express the notion that practitioners know that adventure education works, yet they do not know exactly why or how. There have been few studies on the mechanisms that produce the positive effects associated with adventure education.

Sibthorp, Paisley, and Gookin (2007) looked to clarify the mechanisms that were responsible for the effects of adventure education. The study was comprised of 663 participants from 120 NOLS courses with the purpose of examining the relationships between participant antecedents (age, sex, previous similar experiences, personal perceptions of empowerment, group perceptions of challenge of terrain, group functioning, instructor rapport and course length) and program characteristics that predict participant development (communication, leadership, small group behavior, judgment in the outdoors, outdoor skills and environmental awareness) (Sibthorp et al., 2007).

The study revealed several key aspects to the mechanisms that produce effects in adventure education. First, it was noted that a sense of personal empowerment by the participants produced a significant difference to all targeted outcomes. The authors supported the notion that instructors should be “empowering students to make decisions and take responsibility” (Sibthorp, Paisley, & Gookin, 2007, p. 15). The level of rapport the instructors had with the students also made a difference within the outcomes and have been identified as an area that is in need of further research. Course length was also seen as a significant predictor for gains in five of the six targeted outcomes; however “it also seemed logical that learning could level-off at some point, and this area could benefit from additional research” (Sibthorp et al., 2007, p. 12).
This research shows that adventure education often has a positive effect on self-concept. While many mechanisms affect this change, program duration has once again proven to be an important variable.

Factors Involved with Outcomes in Adventure Education

Adventure education is a multi-dimensional concept including many factors that affect the outcomes of the experience. Most programs use activities that push the participants both physically and psychologically which helps interpersonal and intrapersonal growth (Nadler & Luckner, 1992). Ewert (1989) found that the adventure education experience is made of three important elements: interacting with the natural world, a perception of risk or danger, and an uncertain outcome. However, not every program is set up the same, nor do they put the same amount of emphasis on every dimension. The amount of variance among these factors can play a role in the outcomes experienced by participants.

Some of the factors that play important roles in this process are time duration, the environment, group development, and challenging objectives. These factors are presented with a focus on time duration and how the variance in the length of a program can affect the change within self-concept.

The duration of adventure education experiences varies widely. While some may last only a couple of days, some may continue for months at a time. For example, NOLS offers courses as short as 14 days and as long as 135 days, while Outward Bound offers courses anywhere between seven and 81 days. The duration of the adventure
education experience has been seen to have an effect on the outcomes of the participants involved (Cason & Gillis, 1994; Hattie, Marsh, Neill, & Richards 1997).

Ward and Yoshino (2006) performed a study on the outcomes of short-term adventure education courses. Taking a qualitative approach, they studied the reflections of ninety-two university students who participated in a one or two time classroom component followed by a weekend field portion. There were three dominant themes that emerged from their analysis, all of which showed a positive increase in effect. These were interpersonal, intrapersonal, and environmental relationships (Ward & Yoshino, 2006). This study shows that short-term programs can have a positive effect on outcomes associated with adventure education but did not show an overall effect on self-concept.

Gillet, Thomas, Skok, and McLaughlin (1991) conducted a study on the effects of a short-term adventure education experience on self-concept. They looked at 61 12th-grade students on a six-day wilderness experience who were pre and post-tested using the Tennessee Self-Concept Scale to evaluate the changes that had been made in self-concept. The students hiked to and camped at a different location each day while carrying all of their personal food and belongings. The control group consisted of 16 students who did not participate in the trip, but were also from the same school and in the same grade as the experimental group. Using Analysis of Variance (ANOVA) and t-test evaluative techniques to identify significant differences between groups, they found no significant changes in the control group and found significant changes for three measures within self-concept for the experimental group: identity ($p < .05$), behavior ($p < .05$), and total self-concept ($p = .05$). The authors assert that changes in self-concept can be produced from shorter courses; however, the “most critical factors investigated should be
the determination of optimal length and intensity of the wilderness trip” (Gillett et al., 1991, p. 42). These results point to the question of whether a longer adventure education experience would provide a greater increase in positive outcomes.

One of the most extensive studies to date was a meta-analysis of 96 studies within adventure education conducted by Hattie, Marsh, Neill, and Richards (1997). The purpose of the study was to examine the outcomes such as self-concept, locus of control, and leadership for adventure education programs. There were 1,728 effect sizes drawn from 151 samples with an average effect size of .34. This is comparable to outcomes from traditional educational programs that have an average of .40 for achievement and .28 for affective outcomes, which shows that adventure education programs can have greater effects on self-concept than traditional programs (Hattie et al., 1997). They also looked at the extent to which these changes lasted. Although there were variations between follow-up effects, the mean for change in effect was .17 over 5.5 months. This suggests that the changes in self-concept continued after the end of the programs for at least 5.5 months. The researchers identified the type of adventure program and the length of the program accounted for 20% of the variance for explained outcomes.

It is unclear from these studies when changes in self-concept start to level off and no longer progress. For example, if a 60-day course provides minimal additional change compared to a 30-day course, do the modest additional benefits outweigh the effort of implementing the course? In light of time and cost investment needed for longer term courses, this type of data could be of importance to practitioners and participants.

The environment in which adventure education takes place is one of the most important factors in the learning process. Hattie, Marsh, Neill, and Richards (1997) found
that the natural environment necessitates particular responses that are of importance to adventure education programs; these responses would include “cooperation, clear thinking and planning, careful observation, resourcefulness, persistence, and adaptability” (p. 43). The environmental element provides risks and dangers that are real and not always easy to solve. When people deal with the difficulties of the environment around them, they receive immediate feedback that helps them prepare for those types of difficulties in the future (Kimbrough, 2007). This immediate feedback comes directly from the environment around them. For example, if someone is walking across a snow slope and falls, they will immediately begin to slide downward and be put in a dangerous position. This is the notion of immediate feedback and has been seen as one of the great learning tools that the natural environment can and does provide to participants.

Most participants have never been exposed to the natural environment at the extent to which adventure education takes place. The fact that it is unfamiliar and new to them contributes to the learning process. Many participants are uncomfortable and possibly fearful of the elements that exist in the natural environment, which provides a higher sense of awareness and focus (Ford & Blanchard, 1993). Another contributing factor is the isolation and lack of contact with the outside world. For some, this may allow the opportunity to think clearly about themselves and their own personal development.

By extending the amount of time participants are in this environment, it can be reasoned that they will become more comfortable with this unfamiliar aspect and overcome some of the original fears they had. Garst, Scheider, and Baker (2001) identified that these programs allow participants to get away from their home
environment, which is an important step toward growth. The interactions that are necessary to complete adventure education courses support this growth as well.

Goldenberg, McAvoy, and Klenosky (2005) found that adventure programs influence the awareness that participants place on themselves and others. They become more aware of their own feelings and gain understanding of how they act in certain situations. In addition, they realize their influence on others around them and how they can positively or negatively affect the group as a whole. Group development is an important process in the adventure experience since many participants enter the group not knowing anyone and are immediately placed in an environment where they have to cooperate and work together. Whether the group forms a strong connection may have an effect on the individual outcomes of the participants. Sibthorp, Paisley, and Gookin (2007) found that if group development was productive, a number of benefits were accomplished; however, if group development was not productive, then those benefits were not achieved. Therefore, the ability of the group to develop in a positive direction can play an important role in the development of the individual.

Over the duration of the adventure experience, groups advance through a number of stages. Martin, Cashel, Wagstaff and Bruenig (2006) identify these in sequential order as forming, storming, norming, performing and transforming. The forming stage is when the group first comes together, while the storming stage represents the first conflicts that arise within the group. Norming is when people start becoming comfortable with one another and the group is starting to truly come together. The group is performing when they are able to take on more difficult tasks than before and transformation occurs when they have met all their goals and look to move forward even
further. This group evolution can be seen as a positive construct to adventure education and further help personal development.

Course duration is of importance for group development to be successful. For groups to be able to move through these stages, they need an adequate amount of time in the wilderness. When courses are short in length, the ability to receive the benefits from the group development process is diminished.

Another factor that is important to adventure education is the activity in which students participate. Not only can the environment be used as a function of challenge, the activities that persist in adventure education provide challenges within themselves that foster learning and growth (Sibthorp, Paisley, & Gookin, 2007). Often, these activities such as rock climbing, whitewater kayaking, and backpacking require new skills that participants have yet to master or experience. These activities may provide levels of fear, excitement and satisfaction, yet must be properly implemented for positive results.

The challenges the participants encounter need to lie within a certain range of their ability level. This phenomenon, known as flow, is the term used to represent the balance between challenge and skill competence (Csikszentmihalyi, 1991). If the challenge is something that lies below their skill level they will become bored and disengaged, while a challenge that is exceedingly above their skill level will provide a high level of anxiety. Priest (1992) described this situation by suggesting “participants will select levels of situational risk which suit their levels of personal competence” (p. 128). He goes on to explain that “challenge is the interplay of risk and competence” while “fear is reaction to perceived risks and real dangers” (p. 128). When competence is high and risk is low, a condition known as exploration and experimentation exists. When
competence is low and risk is high, devastation and disaster may occur. When these two variables are evenly matched, what is known as peak adventure or flow becomes possible (Priest, 1992). As these activities are implemented into programs, it is important for practitioners to understand these concepts and aim toward providing participants an activity level that can provide peak adventure.

The duration of time a participant has to practice these skills and become proficient has dramatic impacts on what they take away from the course. For example, a student who has three days to practice whitewater kayaking will not be as proficient as a student who has two weeks. The feelings of satisfaction and accomplishment may be higher for the student who practiced for two weeks because of their increased skill level, which may lead to a higher increase in self-concept.

The duration of the adventure experience has been seen to play a critical role in the outcomes associated with self-concept. While benefits from both short and long-term programs have been identified, the optimal program length which provides the most benefit within self-concept is unclear in the current literature. The reviewed research suggests the longer duration of the adventure experience, the greater the likelihood of a positive change in self-concept will occur.

Summary

This review of the literature shows three aspects of importance in regard to adventure education: the philosophical and historical backgrounds, the research conducted around self-concept and adventure education, and the key variables that can influence the adventure experience.
Adventure education has roots that extend far into world history. The basic philosophy of education through experience continues to hold merit. Programs such as Outward Bound and The National Outdoor Leadership School provide participants the opportunity to actively engage with the natural environment while providing an avenue toward personal and social development.

Self-concept has been a consistent topic of study in the realm of adventure education. Studies have shown that adventure experiences have the ability to increase personal self-concept. These findings are of importance as they can be viewed as a benefit to one’s personal and social development.

There are a number of variables one must consider when trying to understand the effects of adventure education experiences. All of these play a different role within the experience and may affect participants differently. Course duration can be seen to have a major influence on self-concept and its development. What has not been studied is the optimal amount of time adventure education programs should be implemented to maximize self-concept development.
CHAPTER III

METHODOLOGY

Students participate in courses offered by the National Outdoor Leadership School (NOLS) for a variety of reasons. Some may attend because they want to gain new leadership skills or they may want to learn new technical skills. Others may attend because they want a challenge both physically and mentally. It is also possible to gain college credit by completing a NOLS course and more students are augmenting their college education with these types of courses.

Although the mission of NOLS is to teach leadership through adventure education, there is a large development of the self that happens on these courses. Adventure education includes the development of the cognitive, physical, and affective domains, “but the product of most adventure education programs are people who understand themselves more fully and relate to others more effectively” (Priest & Gass, 1997, p. 20).

The purpose of this study was to investigate whether the length of an adventure education course influences the change in self-concept. There are a number of adventure education programs that exist; however, very few of them offer courses in excess of 30 days. This study looked at 14-day, 30-day, and semester long (68-76 days) NOLS courses to see whether the duration of a course has an impact on the change of self-concept of the participants.
Research Design

This study used a quasi-experimental design to look at self-concept and course duration within adventure education. NOLS has different branches or “base camps” around the world. Students begin and end their courses at the branch. Four different branches were used in this study because of the time of year and the course types that each branch provides. The branches used were the Alaska, Yukon, Teton Valley, and the Rocky Mountain Branch. Four courses were studied from the Alaska branch, one course from the Yukon branch, four courses from the Teton Valley branch and three courses from the Rocky Mountain branch. Twelve courses were selected for this study, four courses for each time duration.

Three different NOLS course durations were used in this study; 14-day, 30-day, and semester courses. All courses studied provided at least one section of backpacking. The 14-day courses offered backpacking only. The 30-day courses were backpacking with four days of rock climbing. The semester courses, due to their length, offered multiple adventure activities. They spent 28-35 of those days backpacking, and the remainder of time was spent participating in mountaineering, whitewater canoeing, whitewater rafting, sea kayaking or rock climbing.

Instrumentation

The Tennessee Self-Concept Scale: Second Edition (TSCS:2) developed by Fitts and Warren (1996) was used to measure student self-concept. The TSCS:2 is an 82 item scale that measures total self-concept and six external sub scales (physical, social, family, academic, personal, and moral) (Brown, 2004). Four validity scores are also
formed that show the validity of each survey taken (inconsistent responding, self-criticism, faking good, and response distribution).

The TSCS:2 uses a five point Likert-type scale (1 = always false, 5 = always true) and is a common instrument used in adventure education studies (Finkenberg, Shows, & DiNucci, 1994; Gillett, Thomas, Skok, & McLaughlin, 1991; Hazelworth & Wilson, 1990). Using Cronbach’s alpha, Brown (2004) found the internal reliability to be between .73 and .95 with a median of .80 and strong evidence of construct, content, and concurrent validity. Brown (1998) reported the internal reliability to be between .73 and .93 and the test-retest reliability to be as high as .83. When using Cronbach’s alpha, anything above .80 is known to have good reliability (Babbie, 2007).

Students also took the NOLS Course Quality Survey (CQS) only at the end of their course. This instrument was designed to measure how effective varying aspects of the program were for the students. The CQS uses a seven-point scale that ranges from “strongly disagree” to “strongly agree.” The researcher chose three variables from this scale to possibly provide further explanation for any change in self-concept.

The first variable is the student group (SG) variable. It consists of five statements that measure how students felt about the cohesiveness of the group and the ability to work as a team. Some of the statements students responded to were “Our group worked well together even when instructors were absent” and “I got along well with everyone on this course.”

The second variable is the geographic terrain (GT) variable. This consists of four statements that measured how challenging and enjoyable the terrain was that
students were traveling through. This consisted of statements such as “The terrain was suitably challenging” and “I appreciated the wilderness qualities of this terrain.”

The third variable is the instructor team (IT) variable. This consists of four statements that measure how students viewed their instructors and they felt they were supported by them. Statements used included “My instructors supported my learning at a high level” and “My instructors worked well as a team.”

Design of Data Collection

Due to the nature of the study, the sampling technique used was a convenience cluster sample. Participants who were surveyed were either on a 14-day, 30-day, or semester long NOLS course with at least one component of backpacking included. The age range of the students was 14 years to 42 years, although 98% of the sample was between 14 years and 24 Years. The Demographic Information Collected Was Participants’ Age, Sex, Prior Participation in a NOLS Course, and The Number of Days Previously Spent on Overnight Wilderness Based Trips.

The Goal of this study was to survey at least 35 students for each course duration. On average, one course consists of ten to twelve students with three instructors. The courses selected were based on availability and logistical reasoning. For example, only four summer semester courses exist within NOLS, so all semester courses were studied. The only two-week courses that exist during the summer are from the Teton Valley Branch, so four courses were studied from that branch. All students were asked to take part in the study, but not required. If students were under the age of 18, parents were to send in a consent form to NOLS.
The survey was administered by a program supervisor at each branch. The program supervisor is the person who supervises the course as they go in and come out of the field. Written directions were provided and the program supervisor read these to all students. The pre-test was given in a paper format within the first 24 hours of the beginning of the course and the post-test in the last 24 hours of the end of the course.

After the surveys were completed, they were placed in a sealed envelope and mailed directly to the NOLS headquarters in Lander, Wyoming. Surveys were locked in a cabinet until all data had been collected and was then mailed to California State University, Chico for analysis. Names and addresses from the participants or any type of course roster were not used in this study to ensure anonymity and confidentiality.

Once all data was received from NOLS headquarters, all surveys were given an identification number and pre and post-tests were matched using the respondent’s birth dates. The researcher input the data into the Statistical Package for the Social Sciences (SPSS) database. This is a standard statistical database that was used to run the statistics for this study.

Due to the age range of this study and the recommended analysis procedures by Fitts and Warren (1996), all total pre-test and post-test scores were converted to T-scores. These are standardized scores that allowed the researcher to compare the change in self-concept across the age ranges.

Analysis

A one-way analysis of variance (ANOVA) was used to determine the significant differences of the mean scores in self-concept between the 14-day, 30-day,
and semester long courses based on the change of subjects T-scores. Pearson correlation coefficients were computed between self-concept and the SG variable, GT variable, and the IT variable; all measured by the NOLS Course Quality Survey. Chapter four discusses the results of this study.
CHAPTER IV

FINDINGS AND RESULTS

The purpose of this study was to examine if time duration on an adventure education course has an influence on a student’s change of self-concept. Three time durations were studied from the National Outdoor Leadership School over the summer of 2009: 14-day courses, 30-day courses, and semester (68-76 days) courses. The Tennessee Self-Concept Scale: Revised Edition was administered to students within the first 24 hours of their course and again within the last 24 hours of their course.

The first part of this chapter discusses the descriptive statistics and frequency of the respondent’s age, sex, whether they have participated in a NOLS course before, and how many previous overnight wilderness experiences they have had. Validity scores for all respondents are presented to ascertain the validity of the surveys received. What follows are the statistical analyses of the research questions asked.

Descriptive Statistics

A total of 105 surveys from the pre-test and post-test were able to be matched after the data was collected and received. There were a total of 34 surveys from four 14-day courses, 43 surveys from four 30-day courses, and 28 surveys from four semester long courses. Some surveys were not able to be used because of students not completing them fully or not marking their birthdates on the form which would not allow the
The following data is presented by giving descriptive statistics for the overall sample for each group.

Of the 105 subjects, 28% were female \((n=29)\) and 72% were male \((n=76)\). The 14-day courses consisted of 24% female \((n=8)\) and 76% male \((n=27)\). The 30-day courses were 35% female \((n=15)\) and 65% male \((n=28)\). The semester courses consisted of 21% female \((n=6)\) and 79% male \((n=22)\).

Age was identified by the researcher by using the subject’s birth date written on their survey. At the time the survey was taken, if subjects were older than six months than their previous birth date, they were considered to be the age of that older year. For example, if a subject was 18 at the time they took the survey and their birth date was less than six months away, the researcher determined that subject to be 19 years of age.

The age ranged from 14 years to 42 years with 98% of respondents being between the age of 14 and 24 years. The 14-day courses comprised an age range between 14 and 16 years of age. Twenty-one percent were 14-year olds \((n=7)\), 56% were 15-year olds \((n=19)\), and 24% were 16-year olds \((n=8)\). The mean age was 15.03 years with a standard deviation of 0.674.

The 30-day course has an age range of 16 years to 42 years with 98% of the subjects being between the ages of 16 years and 23 years. Sixty-five percent of the subjects were between the ages of 19 years and 21 years \((n=28)\). The mean age was 20.35 years with a standard deviation of 3.785.

The semester courses had an age range of 17 years to 29 years with 75% of these subjects between the ages of 19 years and 21 years \((n=21)\). The mean age was 20.86 years with a standard deviation of 2.189. These can be seen in Table 1.
Table 1

*Mean Age, Standard Deviations, and Sex for All Courses*

<table>
<thead>
<tr>
<th>Course Durations</th>
<th>Mean Age</th>
<th>Standard Deviation</th>
<th>Percent of Females</th>
<th>Percent of Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-Day Courses (n = 34)</td>
<td>15.03</td>
<td>0.674</td>
<td>24%</td>
<td>76%</td>
</tr>
<tr>
<td>30-Day Courses (n = 43)</td>
<td>20.35</td>
<td>3.785</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Semester Courses (n = 28)</td>
<td>20.86</td>
<td>2.189</td>
<td>21%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Of the 105 subjects, only three percent had ever participated on a previous NOLS course (n=3), 80% have never been on a previous NOLS course (n=84), and 17% did not answer (n=18). Of the three that have been on a previous NOLS course, two were from the semester courses and one from the 30-day courses.

Those subjects with previous wilderness experience had ranges from zero to 150 days. The 14-day courses had a range from zero to 65 days. Thirty-two percent had zero days of previous wilderness experience (n=11) and 32% of the subjects had between two and 30 days of experience (n=11). Three subjects reported having 35 days, 60 days, and 65 days of experience. Twenty-seven percent did not respond to this question (n=9) and is seen in Table 2.

The 30-day courses comprised subjects with previous experience ranging from zero to 100 days. Twenty-three percent had zero days of previous wilderness experience (n=10) while 63% of the subjects reported having between two days and 30
Table 2

*Previous Wilderness Experience of All Courses*

<table>
<thead>
<tr>
<th>Course Durations</th>
<th>Zero Days</th>
<th>1-30 Days</th>
<th>31+ Days</th>
<th>No Response</th>
<th>Range (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-Day Courses (n= 34)</td>
<td>32%</td>
<td>32%</td>
<td>9%</td>
<td>27%</td>
<td>0-65</td>
</tr>
<tr>
<td>30-Day Courses (n= 43)</td>
<td>23%</td>
<td>63%</td>
<td>5%</td>
<td>9%</td>
<td>0-100</td>
</tr>
<tr>
<td>Semester Courses (n= 28)</td>
<td>7%</td>
<td>22%</td>
<td>25%</td>
<td>46%</td>
<td>0-150</td>
</tr>
</tbody>
</table>

days previous experience (n=27). Five percent of the subjects had more than 30 days experience (n= 2). Four subjects did not answer this question.

The semester courses contain subjects with previous experience ranging from zero to 150 days. Seven percent had zero days of experience (n=2) while 22% had between six days and 30 days experience (n=6). Twenty-five percent of the subjects had more than 30 days of previous experience. Forty-six percent of the subjects did not answer this question which can be seen in Table 2.

Validity Testing

The Tennessee Self-Concept Scale: Revised Edition identifies four validity scores to guard against “unusual or distorted response patterns” (Fitts & Warren, 1996, p. 15). These scores help to ensure that the responses given are valid and the test can be
truly interpreted. The four scores identified are inconsistent responding (INC), self-criticism (SCR), faking good (FG), and response distribution (RD).

The INC score shows if there is an “unusually wide discrepancy in the individuals response to pairs of items with similar content- pairs of items such as ‘I am an attractive person’ and ‘I look fine just the way I am’” (Fitts & Warren, 1996, p. 15). If there is a particularly high INC score ($\geq 12$), this may be due to thoughtless and hasty responding (Fitts & Warren, 1996). These scores were calculated for both pre and post tests. Of the 105 pre-tests, 96% had a score of 11 or lower ($n = 101$). From the 105 post-tests, 93% had a score of 11 or lower ($n = 98$).

The SCR score include “mildly derogatory statements, such as ‘I get angry sometimes’- common frailties that most people would admit to when responding candidly” (Fitts & Warren, 1996, p. 15). Low scores show if people are trying to create a better image of themselves than is real and high scores show if they tend to fixate on their personal faults (Fitts & Warren, 1996). Generally, a score between 23 and 38 show a “normal, healthy openness and capacity for self-criticism” (Fitts & Warren, 1996, p. 15). These scores were calculated for both pre- and post-tests. Of the 105 pre-tests, 91% fell within the preferred range ($n = 95$) while the remaining nine percent had a score of 22 or less ($n = 10$). The 105 post-tests showed that 90% fell within the preferred range ($n = 94$) and ten percent had a score of 22 or less ($n = 11$).

The FG score is an “indicator of the tendency to project a falsely positive self-concept” (Fitts & Warren, 1996, p. 20). Subjects who had a score of 19 and above may indicate that they are presenting a false impression. These scores were calculated for both
pre and post-tests. For the 105 pre-tests and post-tests scored, all showed a score of lower than 19 ($n=105$, 100.0%).

The RD score shows the “pattern of the individual’s responses as distributed across all five available response options” and “is interpreted as a measure of the certainty about the way one sees oneself (Fitts and Warren, 1996, p. 20). A high RD score ($\geq 51$) reveals that a respondent is very specific about describing themselves and a low score ($\leq 15$) reveals they may be protective about themselves (Fitts & Warren, 1996).

These scores were calculated for both pre and post-tests. Of the 105 pre-tests, 65% of the respondents fell within the preferred range ($n=68$), five percent had high scores above or equal to 51 ($n=5$), and 30% had scores lower or equal to 15 ($n=32$). For the 105 post-tests, 65% of the respondents also fell within the preferred range ($n=68$), ten percent had high scores above or equal to 51 ($n=10$) and 25% had scores lower or equal to 15 ($n=27$).

Three out of the four validity scores fell within the preferred range for more than 90% of the population. For the pre-tests, 96% fell within the preferred range for INC, 91% for SCR, 100% for FG, and 65% for RD. For the post-tests, 93% fell within the preferred range for INC, 90% for SCR, 100% for FG, and 65% for RD. This data shows that the results from these surveys present a valid picture of the findings. For the tests that fall out of the preferred range, the TSCS: II manual suggests exploring such distortions by “using interview, clinical history, or other data” (Fitts & Warren, 1996, p.20). Exploring such distortions in this manner was beyond the scope of this study. Therefore, all 105 respondents were used to ascertain changes in self-concept.
Tests of Research Questions

The six external subscales (physical, moral, personal, family, social, academic) and total self-concept were calculated for both pre-tests and post-tests. The differences between the pre and post mean scores for total self-concept in all three groups were calculated.

Will there be a significant difference in students’ change in self-concept between adventure education courses of 14-days, 30-days, and semester long courses?

The mean scores and standard deviations for the six domains and total self-concept T-scores of the pre-test and post-test within the 14-day courses are presented in Table 3. The mean scores in all domains and in total self-concept slightly decreased between pre and post-test ($\Delta M$: PHYS= -0.9, MOR= -0.4, PERS= -0.4, FAM= -0.5, SOC= -0.7, ACA= -0.4, TOT= -1.1).

The mean scores and standard deviations for the six domains and total self-concept T-scores of the pre-test and post-test within the 30-day courses are presented in Table 4. The mean scores in all domains except family self-concept either stayed the same or slightly increased between pre and post-test. Total self-concept scores increased from pre-test to post-test ($\Delta M$: PHYS= 1.2, MOR=0.6, PERS= 1.1, FAM= -0.1, SOC= 0.5, ACA= 0.0, TOT= 0.9).

The mean scores and standard deviations for the six domains and total self-concept T-scores of the pre-test and post-test within the semester courses are presented in Table 5. The mean scores in all domains and total self-concept stayed the same or slightly decreased between pre and post-test ($\Delta M$: PHYS= -0.3, MOR= -1.3, PERS= -0.5, FAM=
Table 3

Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (14-Day Courses)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical SC Pre-Test</td>
<td>44.12</td>
<td>5.30</td>
</tr>
<tr>
<td>Physical SC Post-Test</td>
<td>43.18</td>
<td>3.80</td>
</tr>
<tr>
<td>Moral SC Pre-Test</td>
<td>35.79</td>
<td>3.57</td>
</tr>
<tr>
<td>Moral SC Post-Test</td>
<td>35.35</td>
<td>3.57</td>
</tr>
<tr>
<td>Personal SC Pre-Test</td>
<td>34.62</td>
<td>3.89</td>
</tr>
<tr>
<td>Personal SC Post-Test</td>
<td>34.15</td>
<td>2.15</td>
</tr>
<tr>
<td>Family SC Pre-Test</td>
<td>38.24</td>
<td>3.64</td>
</tr>
<tr>
<td>Family SC Post-Test</td>
<td>37.68</td>
<td>3.64</td>
</tr>
<tr>
<td>Social SC Pre-Test</td>
<td>37.29</td>
<td>4.31</td>
</tr>
<tr>
<td>Social SC Post-Test</td>
<td>36.62</td>
<td>3.69</td>
</tr>
<tr>
<td>Academic SC Pre-Test</td>
<td>36.94</td>
<td>2.71</td>
</tr>
<tr>
<td>Academic SC Post-Test</td>
<td>36.53</td>
<td>3.28</td>
</tr>
<tr>
<td>Total SC Pre-Test T-Scores</td>
<td>34.47</td>
<td>4.55</td>
</tr>
<tr>
<td>Total SC Post-Test T-Scores</td>
<td>33.41</td>
<td>4.29</td>
</tr>
</tbody>
</table>

N = 34

0.0, SOC= -0.2, ACA= -2.0, TOT= -1.4). The change in all domains and total self-concept can be seen in Table 6 for all three course durations.

A one-way between-groups analysis of variance (ANOVA) was conducted to see if there were significant differences in the change of self-concept between the three groups.
Table 4

Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (30-Day Courses)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical SC Pre-Test</td>
<td>41.84</td>
<td>3.70</td>
</tr>
<tr>
<td>Physical SC Post-Test</td>
<td>43.02</td>
<td>2.92</td>
</tr>
<tr>
<td>Moral SC Pre-Test</td>
<td>34.07</td>
<td>3.09</td>
</tr>
<tr>
<td>Moral SC Post-Test</td>
<td>34.58</td>
<td>3.47</td>
</tr>
<tr>
<td>Personal SC Pre-Test</td>
<td>31.72</td>
<td>2.67</td>
</tr>
<tr>
<td>Personal SC Post-Test</td>
<td>32.81</td>
<td>2.42</td>
</tr>
<tr>
<td>Family SC Pre-Test</td>
<td>36.77</td>
<td>3.39</td>
</tr>
<tr>
<td>Family SC Post-Test</td>
<td>36.72</td>
<td>2.90</td>
</tr>
<tr>
<td>Social SC Pre-Test</td>
<td>35.88</td>
<td>3.16</td>
</tr>
<tr>
<td>Social SC Post-Test</td>
<td>36.37</td>
<td>2.86</td>
</tr>
<tr>
<td>Academic SC Pre-Test</td>
<td>35.00</td>
<td>2.80</td>
</tr>
<tr>
<td>Academic SC Post-Test</td>
<td>35.00</td>
<td>2.28</td>
</tr>
<tr>
<td>Total SC Pre-Test T-Scores</td>
<td>27.30</td>
<td>3.88</td>
</tr>
<tr>
<td>Total SC Post-Test T-Scores</td>
<td>28.23</td>
<td>3.70</td>
</tr>
</tbody>
</table>

\(N = 43\)

There was a statistically significant difference at the \(p < .05\) level in the change of self-concept between the three groups: \(F (2, 102) = 4.4, p < .05\) and can be seen in Table 7. Post-hoc comparisons using the Tukey HSD test indicated that the mean change for 30-day courses was significantly different \((M = 0.93, SD = 3.00, p < .05)\) from semester
Table 5

Pre and Post-Test Mean Scores for Six Domains and Total Self-Concept T-Scores (Semester Courses)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical SC Pre-Test</td>
<td>42.11</td>
<td>3.00</td>
</tr>
<tr>
<td>Physical SC Post-Test</td>
<td>41.82</td>
<td>2.88</td>
</tr>
<tr>
<td>Moral SC Pre-Test</td>
<td>35.11</td>
<td>3.22</td>
</tr>
<tr>
<td>Moral SC Post-Test</td>
<td>33.75</td>
<td>2.68</td>
</tr>
<tr>
<td>Personal SC Pre-Test</td>
<td>33.36</td>
<td>3.12</td>
</tr>
<tr>
<td>Personal SC Post-Test</td>
<td>32.93</td>
<td>2.21</td>
</tr>
<tr>
<td>Family SC Pre-Test</td>
<td>36.29</td>
<td>2.79</td>
</tr>
<tr>
<td>Family SC Post-Test</td>
<td>36.25</td>
<td>3.27</td>
</tr>
<tr>
<td>Social SC Pre-Test</td>
<td>35.82</td>
<td>2.80</td>
</tr>
<tr>
<td>Social SC Post-Test</td>
<td>35.64</td>
<td>3.09</td>
</tr>
<tr>
<td>Academic SC Pre-Test</td>
<td>36.61</td>
<td>8.66</td>
</tr>
<tr>
<td>Academic SC Post-Test</td>
<td>34.57</td>
<td>2.73</td>
</tr>
<tr>
<td>Total SC Pre-Test T-Scores</td>
<td>27.93</td>
<td>4.14</td>
</tr>
<tr>
<td>Total SC Post-Test T-Scores</td>
<td>26.57</td>
<td>2.44</td>
</tr>
</tbody>
</table>

$N = 28$

courses ($M = -1.36$, $SD = 3.47$) but not 14-day courses ($M = -1.06$, $SD = 4.45$). Despite reaching statistical significance, the actual difference between the groups was quite small and the 30-day course subjects were the only group that had a positive change in self-concept.
Table 6

*Change in Self-Concept Domains and Total Self-Concept T-Scores for All Courses*

<table>
<thead>
<tr>
<th></th>
<th>14 –Day Courses</th>
<th>30-Day Courses</th>
<th>Semester Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔM Physical SC</td>
<td>-0.9</td>
<td>1.2</td>
<td>-0.3</td>
</tr>
<tr>
<td>ΔM Moral SC</td>
<td>-0.4</td>
<td>0.6</td>
<td>-1.3</td>
</tr>
<tr>
<td>ΔM Personal SC</td>
<td>-0.4</td>
<td>1.1</td>
<td>-0.5</td>
</tr>
<tr>
<td>ΔM Family SC</td>
<td>-0.5</td>
<td>-0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>ΔM Social SC</td>
<td>-0.7</td>
<td>0.5</td>
<td>-0.2</td>
</tr>
<tr>
<td>ΔM Academic SC</td>
<td>-0.4</td>
<td>0.0</td>
<td>-2.0</td>
</tr>
<tr>
<td>ΔM Total SC T-Score</td>
<td>-1.1</td>
<td>0.9</td>
<td>-1.4</td>
</tr>
</tbody>
</table>

Table 7

*ANOVA of Change in Self-Concept Between the Three Groups*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ Total Self-Concept</td>
<td>115.889</td>
<td>2</td>
<td>57.944</td>
<td>4.355</td>
<td>.015</td>
</tr>
</tbody>
</table>

As can be seen from Graph 1, subjects in the 14-day courses started and ended with a higher self-concept than the other two courses even though they did have a decrease. All courses had T-scores below 40. According to Fitts and Warren, the T-scores show
individuals with low self-concept from the beginning of the course to the end (1996). T-scores that are ≤40 exemplify individuals who are “doubtful about their own worth” and “set unchallenging goals and their achievement is usually lower than that of which they are capable” (Fitts & Warren, 1996, p. 22).

- Is there a relationship between a change in student self-concept and the perception of the student group?
- Is there a relationship between a change in student self-concept and the perception of the geographic terrain?
- Is there a relationship between a change in student self-concept and the perception of the instructor team?

The NOLS Course Quality Questionnaire was collected from 44 subjects (n=44, 41.9%). Due to communication and logistical challenges between branches, not all courses were given this survey at the end of the course. There were no subjects from the 14-day courses that received the survey. Sixty-five percent of the subjects from the 30-
day course completed the survey \((n=28)\) and 50\% of the subjects from the semester course completed the survey \((n=14)\).

From the completed surveys, the scores from each question were added together and given an average score for each variable. The overall mean scores of the average scores for student group variables \((19.6)\), geographic terrain variables \((22.6)\), and instructor team variables \((21.5)\) show that students had a positive perception on all three of these variables during their course. A score of 30 would represent “strongly agree, which means a score of 20 is one value below this.

Pearson correlation coefficients were run to see if there was a relationship between change in self-concept and student group variables, geographic terrain variables, and instructor team variables. Self-concept and student group variables did not have a significant relationship \((p = .34)\) and had a correlation of -.151. Self-concept and the geographic terrain variables also did not have a significant relationship \((p = .75)\) and had a correlation of -.050. Self-concept and the instructor team variables did not find any statistically significant relationship \((p = .34)\) and had a correlation of -.152. These can be seen in Table 8.

**Summary of Results**

This study looked at whether the length of time students participated in an adventure education had an effect on their change in self-concept. The results from this study found that there was a statistically significant difference in the change of self-concept between 30-day courses and semester courses. Although statistically significant, 30-day courses were the only group to increase in self-concept. The 14-day and semester
Table 8

*Pearson’s Correlation Coefficient of Change in Self-Concept in Relation to Course Variables*

<table>
<thead>
<tr>
<th>Change in T-Score</th>
<th>Pearson Correlation</th>
<th>Significance (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Student Group Variable</td>
<td>Geographic Terrain Variable</td>
</tr>
<tr>
<td>-.151</td>
<td>-.050</td>
<td>-.152</td>
</tr>
</tbody>
</table>

courses both had a slight decrease in total self-concept. Correlations between the change in self-concept and student group variables, geographical terrain variables, and instructor variables were not statistically significant. Conclusions, limitations, and recommendations are discussed in Chapter V.
CHAPTER V

CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

This study investigated whether the length of time on an adventure education course had an effect on a subject’s change in self-concept. Three course durations from the National Outdoor Leadership School (NOLS) were studied: 14-day, 30-day, and semester long (68-76 days) courses. The Tennessee Self-Concept Scale: Second Edition was administered to all subjects within the first 24 hours of the course and the final 24 hours of the course.

This chapter will give conclusions about the research questions asked, provide limitations to the findings, and give recommendations for future research.

Conclusions

Research Question One

Will there be a significant difference in students’ change in self-concept between adventure education courses of 14-days, 30-days, and semester long (68-76 days) courses?

This study showed a statistically significant difference in the change of self-concept between groups at the $p < .05$. According to the Tukey HSD test, the only significant difference was between the 30-day courses and the semester courses. Despite
showing significance, it was shown that the 30-day courses were the only courses to increase their self-concept ($M = .9$) from pre-test to post-test. Both the 14-day and semester courses showed a slight decrease ($M = -1.1, M = -1.4$) in self-concept from pre-test to post-test. The increase and decreases were so slight that it could be inferred that there was little to no change between all three groups. This data could also show that 30-day courses may be the optimal length of time to change self-concept. Fourteen-day courses may be a little too short and semester courses may be an excessive amount of time to make changes in self-concept.

According to Fitts and Warren (1996), all three groups started their course with a “low” self-concept. It is possible these courses were so challenging that they did not succeed at a high level and this could be a reason the course had such limited input on change in self-concept.

Age is another factor that could have played a role in these results because there were distinct age ranges between the three groups. All of the students in the 14-day courses were between the ages of 14 years and 16 years. Seventy-nine percent of the students from the 30-day courses were between the ages of 17 years and 21 years. The semester courses had 82 percent of their students between the ages of 20 years and 24 years. It is possible there was change in the 30-day courses because of the age range of that group. Research suggests that there is not a difference in self-concept perceptions due to age (Hattie, 1992), but subjects in their early and late adolescent years tend to put much more importance on different dimensions of self-concept such as physical appearance and social self-concepts (Byrne & Shavelson, 1996).
Although this study did not find a significant change in self-concept statistically, written responses from students might suggest otherwise. The NOLS Course Quality Survey, which was given to 44 students from the sample, asks the question “What was the most rewarding part of this trip”? More than one-third of the responses written by students had a reference to the growth and learning about one’s self. Examples of these are “I learned more about myself in this month than I have ever in the past,” “the growth of my self-awareness,” and “discovering new aspects about myself.” These written responses give a more in depth look at some of the changes and growth that did occur on these courses.

**Research Question Two**

Is there a relationship between a change in student self-concept and the perception of the student group?

**Research Question Three**

Is there a relationship between a change in student self-concept and the perception of the geographic terrain?

**Research Question Four**

Is there a relationship between a change in student self-concept and the perception of the instructor team?

This study did not find a significant relationship between a change in student self-concept and the perception of student group variables, geographic terrain variables, and instructor team variables. This could have been because the sample size that completed the NOLS Course Quality Survey ($n = 44$) was much smaller than the overall
sample population \((n = 105)\). This small number makes it difficult to find statistical significance when looking at correlations.

Another reason why there may have not been significance is that there was not a significant amount of change in self-concept. Therefore, it is difficult to find a relationship to change without first having significant change.

**Limitations**

The first limitation to this study is the sample size of the population. It is more difficult to find statistical significance between differences with small sample sizes. Between the three groups, 30-day courses had the largest sample size with 43 subjects and also had the only increase in self-concept. A larger sample size would allow to generalize these results more easily.

Another possible limitation was that the researcher was not able to oversee or administer the survey to the subjects. Many surveys were returned that did not have student’s birthdates or demographic information filled out. This puts into question exactly how the test was administered and whether the written directions were followed. In addition, it also reduced the number of valid surveys in the study which reduced the overall sample population. It is unknown exactly the time of day or events surrounding the survey that could have an effect on these results. For example, were students rushed to take the survey just before they left for the course or did they fill it out when they were not stressed about leaving and given sufficient time? These factors could have played a role in the outcome of this data.
Another factor to consider is how seriously the students took the survey. A couple of surveys were returned to the researcher with the first choice filled in for all questions or there was a particular pattern they created such as zigzags. These surveys were not used in the research but lend to question how seriously the other students took the survey.

The dynamic nature of adventure education makes it difficult to control all factors of a study. Recognizing that all courses had different instructors, different weather and terrain, and a different student group is important in understanding the limitations of this study. All three of these factors combined or individually can have a strong impact on a student’s experience. These are factors the researcher could not control and limit the findings of this research.

Recommendations

The following recommendations are presented for future research in this area of study. The first recommendation is that future research should include a scientific qualitative component in addition to the quantitative results. Adventure education is a field where qualitative data can be an important asset to a study.

A larger sample size is also recommended. This could be done by including more NOLS courses or using courses from similar programs to augment the numbers. In addition, it may better suit this study to use a program that focuses primarily on student self-concept such as Outward Bound. Because they focus much of their program goals on self-concept, a more significant change may be found by using these courses.
This study was done as a pre and post-test design. Future research could be benefited by making a longitudinal study and testing the students four to six months after the experience. It can be difficult for students to fully grasp the impact of the experience they had immediately following the course. It may take weeks or months for students to truly internalize what they learned on a course. This was evident when students responded to the NOLS Course Quality Questionnaire when asked “What was the most rewarding part of this trip”? There were a couple students who had responses such as “That’s a good question that cannot be answered now. Ask me in a month” or “I'm not quite sure if I know quite yet.” By testing them longitudinally, we can see if it does take time for these experiences to have a positive impact on self-concept and if the initial changes stay intact over time.

It is recommended for future study to have all subjects within the three groups in the same age range. This study had fairly distinct age ranges between groups and this may have had an impact on the results. Future studies should use students either in college or students under the age of 18 as their breaking mark for age.

Looking further into the mechanisms that cause change on adventure education courses is an area in need of further study. While that was not the main intention of this study, the researcher did try to see if student group variables, geographic terrain variables, and instructor variables had an influence on change. A more in depth look at how these variables affect a student’s experience is recommended.
REFERENCES


