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THE RELATIONSHIP BETWEEN CHALLENGE COURSES AND THE

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THE RELATIONSHIP BETWEEN CHALLENGE COURSES AND THE SELF-CONCEPT OF FIRST-GENERATION COLLEGE STUDENTS

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whose only job would be to go to school. We are those kids! We will honor their sacrifice by dedicating ourselves to the enlightened disciplines of higher education.

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ABSTRACT

There has been an increasing demand among education agencies to utilize challenge courses, also known as ropes courses, for personal growth opportunities among students of all ages. Teachers often tell students how they want students to work as a "team" and "get along" without providing the experiences for them to practice such behaviors. A low ropes experience allows students to practice cooperative skills. The focus of garnering participants for this study was to identify a specific target of first-generation college students from two separate classroom settings. The research focused on identifying the relationship between first-generation college students and low ropes course experiences regarding the views of self-concept. Self-Concept was measured using nine sub-scales from the Tennessee Self-Concept Scale 2 (TSCS:2). The data revealed that the main effect of time was significant, $F(1,89) = 10.28$, $p = 0.002$. This valuable finding suggests that time on a ropes course increases Total self-concept. The interaction between time of TSCS:2 survey administration and condition was significant, $F(1,89) = 6.71$, $p = 0.01$. The implication of findings suggests that when these students were exposed to low ropes course experiences positive change in self-concept occurred.

Table of Contents

List of Tables

List of Figures

CHAPTER I

Introduction

Ropes Course Background

For several decades, there has been an increasing demand by organizations to get its stakeholders involved in challenge courses, also known as ropes courses, or outdoor adventure activities. Organizational leaders continually look at challenge courses to develop human capital, which is evidenced by nearly 15,000 courses operating today in the United States alone (Attarian, 2001). The earliest forms of challenge courses centered on the self-efficacious domain of participants (Hahn, 1970). Like many kinesthetic disciplines, challenge courses were inspired out of military practice. Outward Bound opened the first organized challenge courses in the United States that were inspired by the British Military and modified for civilian use with a mission to build confidence through the completion of a series of complex team and individual challenges. These activities were designed to test the minds and bodies of participants and encourage them to take risks and trust in a team concept (Hogan, 1968). Subsequently, the modern era of challenge courses was pioneered by an organization called Project Adventure.

Project Adventure was established to produce school-based cooperative adventure learning activities inspired by Outward Bound curriculum (Prouty, 1990). Challenge courses were used as learning tools for student development, giving way to the modern era of challenge courses beginning in the early 90's. By this time, a sequence of strategically aligned activities were codified to deliver enjoyable experiential educational training activities applicable in a variety of situations. Project Adventure activities were founded upon the theory of "challenge-by-choice," in which participants were

empowered with the choice to attempt or complete any activity (Prouty, 1990). This was a stark contrast to the philosophy of assertively testing participants initially grounded in Outward Bound curricula. With little evidence to confirm the impact of such courses, it was hard to prove whether the course experience actually upheld stated goals, such as team building or improved self-concept. In spite of the fast expansion of challenge course curriculum and groups served over the last few decades, an absence of consensus between research and the scientific community remains regarding the countless assertions of the psychosocial benefits of challenge courses.

The first modern courses appeared in the United States in the 1960's through the Colorado Outward Bound School. Since then, challenge courses have become widely used by organizations working with at-risk youth, hospitals, therapeutic settings, schools, camps, and businesses (Gillis & Speelman, 2008). Challenge courses are categorized as either high ropes or low ropes. In addition to the course itself, there are a series of icebreakers and cooperative games that each course facilitator uses as an additional resource to meet group objectives, which are developed through goal-setting group activities. The main goals of adventure activities are to improve communication and personal/group growth, improve self-efficacy, and become more connected with one's own thought process.

The process in which the group converges to create a set of goals and ground rules is referred to as the Full Value Contract; it may be verbal, written or symbolic (Rohnke, 1991). The group comes to an agreement prior to beginning challenge course obstacles. Each member has an influence in the contract creation, as it ultimately is used to outline the mission of each activity. Low ropes activities include balancing and traversing on

elevated (1-3ft) cable ropes, activities such as rope swinging, the Trust Fall, and partner balancing, to name a few. High ropes courses involve high angle activity, which requires a full harness suit and helmet. These activities range from repelling, rock walls, zip-line, and high angle partner puzzles (Gillis & Speelman, 2008). Lead-up activities, icebreakers, and cooperative games include strategies such as human knot, group juggling, and group-based problem solving.

There are many testimonials regarding the value in all of these activities and courses, but little research gives evidence toward connections that are made in areas such as team building or communication. Some studies have examined the effects, perceptions, and assumptions about the value of the activities and courses (need some references here). Whether the challenge course is low ropes, high ropes, or a series of adventure activities, the goal remains the same: to reach awareness regarding self-fulfilling limitations and artificial outside barriers, while exploring new possibilities by cross referencing the challenge course experiences to realities that exist in the lives of the participants. The application to self is one of the primary tenants of the challenge course experience (Goldenberg, Klenosky, O'Leary, & Templin, 2000). Another chief tenant that derives from the challenge course is that participants will seamlessly transition what was learned into other situations and environments. Therefore, it is rational for challenge course facilitators to assume that participants can connect abstract learning goals from concepts in experiential education (Goldenberg, Klenosky, O'Leary, & Templin, 2000). Abstract learning goals and taking risk along with the self – application of the experience are just as important as the completion of the task. It is in the challenge course experience

that participants gain repetition in doing things that they did not think they could do, which has been proven to improve self-concept (Beard & Wilson, 2002).

Research in self-concept and challenge courses has developed sub-groups of inquiry in approximately 30 years of study. A number of groups and situations have combined to create a portfolio of research. These subgroups are varied and include some of the following:

- College student organizations (Hatch, 2005)
- At-risk high school students (Conley, 2007)
- College men and women (Finkenberg, Shows, & DiNucci, 1994)
- Working adults (Wolfe & Datillo, 2006)
- Individuals with disabilities (Anderson, Schleien, McAvoy, Lais, & Seligmann, 1997)
- Substance abusers (Gass & McPhee, 1990)
- LGBTQ (Bradish, 1995)
- Girls (Mitten, 1992)
- Urban Youth (Dent, 2006)

Currently, very little research exists to document the benefits of challenge course experiences in relation to the population of low-income and first-generation college students. In fact, the only correlating research with this group that was found includes: (a) urban youth (Dent, 2006); (b) at-risk college students (Steffen & Cross, 1994); (c) adolescents in treatment programs (Witman, 1987), and (d) low-income minority youth (Green, Kleiber, & Tarrant, 2000). Research connected to adventure activities suggests a positive relationship between youth groups and self-concept. However, there is very little

research found that solely examines first-generation college students and adventure activities.

First-Generation College Students

In the absence of a unified definition, "first-generation college student" is a term that describes a student for which neither parent has obtained a bachelor's degree from a four-year institution of higher learning (Supiano, 2014). This population may fall into two categories: (a) the student group finishing high school, and (b) students that acquire this title once enrolled in college for the first time (Supiano, 2014). Identifying first-generation students recently gained attention in the "Chronicle of Higher Education" (Mangan, 2015), where it was stated that the title for this student group was given in an effort to shift attention away from only counting those whose parents enrolled in college. First-generation students have always been part of the educational landscape, but in recent decades this sub-group has been a topic of attraction for stakeholders trying to create the diversity that is representative in the real world in higher education. Regardless of the definition application, first-generation college students as a cohort share some very distinct commonalities (Nunez, 1998):

- Lack group skills originating from home and community
- Belong to a racial or ethnic minority group
- Originate from low-income families
- Score lower on college entrance exams

Once first-generation students are on campus, they tend to have lower Grade Point Averages (GPA) during the first semester, are more likely to drop out during their first year, and often have work commitments equal to and even in excess of class/study

time (Somers, Woodhouse, & Cofer, 2004). These descriptive attributes place first-generation students at an exceptional disadvantage as they prepare for and pioneer their way through high school into their didactic collegiate careers. This population is most affected by changes in the U.S. Dept. of Education financial assistance, tuition costs, minimum credit hour enrollment, and GPA requirements that are tied to sources of financial aid, scholarships, and grant aid.

Without question, first-generation students need additional support measures to enroll in college, stay enrolled, and graduate. Across the nation, colleges and stakeholders have a deep interest in identifying the most vulnerable student population so support measures leading toward graduation are provided. Colleges rely on first-generation students to diversify the campus community and create an environment that resembles the nation's workforce. Although this student population is not new to the college landscape, it is important to find alternative classroom support measures to provide them the experiences needed to flourish.

Statement of the Problem

There is a lack of research on first-generation college students and a measurement of their self-concept after a comprehensive low ropes challenge course experience. Numerous studies have revealed clues about the self-concept of first-generation students under a variety of conditions and situations. Separately, the body of research on challenge courses has revealed mostly positive correlations as an intervention with several types of groups that may relate to first-generation students. However informative each study is alone, there has yet to be research conducted on the relationship of a low ropes course program and the self-concept of first-generation college students. It is imperative for

institutions of formal learning to understand what types of interventions are appropriate for student success. With this information at hand, educators and teachers will have a targeted classroom tool at their disposal to learn about their students and engage them in activities that may develop their self-concept. This has the potential to positively influence their confidence and other executive functions that are applicable for success in a classroom setting.

Purpose of the Study

The purpose of this study was to examine the relationship of participation in a low ropes challenge course program and the self-concept of first-generation college students. Through quantitative research, this study observed the relationship between the course experience and the self-concept of first-generation college students. In addition, a demographic survey was used to gain participant group specific data. The survey instrument that used was the TSCS:2 Adult Form (Fitts & Warren, 1996). The TSCS:2's 82- question survey spreading across several scoring subscales.

Components of Self-Concept include:

- Self-Criticism
- Behavior
- Academic/Work
- Moral
- Personal
- Family
- Social
- Total-Self-Concept

Summary and total scores were provided for each domain with the total score being the most valued in interpreting overall perception. A low total score was suggestive of a participant who may have a lower self-concept, may be indecisive, may have a harder time dealing with life struggles, and may doubt their own abilities. A high total score was suggestive of an individual who values themselves and their ability to contribute to society. Participants in this study completed the TSCS:2 on the first day of scheduled activity approximately 30 minutes prior to receiving low ropes course activities; completion of the survey was estimated to be around 10 minutes. Participants completed a post TSCS:2 three weeks later on the last day of activity, after the final scheduled session.

Self-Concept is the foundation for how humans interact and behave (Rosenberg, 1979). Specific attention was paid to disposition, sense of belonging, teamwork, conflict resolution, and confidence. These elements were selected because they aligned with critical objectives and the perceived benefits associated with challenge course programs (Hattie, Marsh, Neil, & Richards, 1997).

Research Questions

1. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Self-Concept subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Self-Criticism sub scores
2. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Social subscale, between students who participated in a short term low ropes course program and those who did not?

a. $H1_0$: There is no effect on self-concept pre/post Social sub scor

3. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Family subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Family sub scores
4. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Academic/Work subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Academic/Work sub scores
5. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Moral subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Moral sub scores.
6. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Personal subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Personal sub scores
7. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Total subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Total sub scores

8. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Behavior subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Behavior sub scores
9. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Physical subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Physical sub scores.

Assumptions

This study was based on the following assumptions:

1. The researcher assumed that the survey (TSCS:2) instrument measured self-concept with validity and reliability.
2. The researcher assumed that the participants clearly understood each item presented in the survey.
3. The participants answered the survey questions honestly.
4. Participants brought a unique educational history and journey to the study.

Significance of the Study

As members of institutions of higher learning make it a goal to prepare students to emerge as leaders of the people they represent, not exclusive of the racial and ethnic lines, it is vital for institutions of higher learning to cultivate campuses reflecting the country's population (Supiano, 2014). The term first-generation has created a way to identify and open a dialogue regarding campus class diversity. The children of blue-collar laborers, truck drivers, food servicers, wait staff, and beauticians may not have been

raised with enriching summer getaways, exposure to the arts, luxury comforts, and prep school, yet they remain coveted applicants for selective and elite colleges. First-generation students cross racial and ethnic lines. The majority of them are poor, and socio-economic gaps are great at elite and selective colleges.

Although there is not one sole definition of a first-generation college student, they are summarized as the first in their family to graduate from a formal school. As a result, the educational attainment of a student's parents can influence a student's risk of dropping out (Hardwick, 2014). This group often faces challenges while in school not akin to their second generation and beyond peers, such as working 30+ hours per week, lack of financial support, lack of educational support, and coping with minority status typecasts. First-generation students are most affected by changes on college campuses such as rising tuition costs, availability of student support services, and changes in the Federal Pell Grant Program. Research on this population reveals that most high-achieving, low-income students do not reach their full potential without guidance from parents who have had a college experience. These students are oblivious to the fact that affluently endowed private and highly selective colleges may often be the most affordable of their college options. Yet, capable first-generation applicants rarely envision appropriately placing themselves into an elite college (Hoxby & Turner, 2013). The rising cost of attendance, coupled with the national trend away from federal grants to loans and the push by public institutions to draw more students paying full tuition rates, has put full-time status at a four-year institution way out of the realm of possibility for first-generation students (Mortenson, 2000).

As a result, first-generation students are concentrated at two-year community colleges because such institutions are within their financial reach. Unfortunately, the national trend shows that states have reduced funding to public institutions by a margin of 35-50% over the past few decades (Mortenson, 2003). Consequently, the funding needs are placed onto the students in the form of higher tuition and fees. Considering the growing numbers of first-generation students enrolling in colleges, the obligation then leans towards individual states to protect and increase post-secondary educational investments. The changing landscape of college education will make identifying best practices for students a priority. The practice of experiential education through a challenge course program has proven itself worthy by evidence of the number of courses existing on campuses nationwide. Challenge courses have shown to enhance both individual and group self-efficacy (Eatough, Chang, & Hall, 2015).

Limitations

The following limitations are facets in this study over which the researcher did not have control:

1. Student attendance during low ropes course sessions.
2. The local weather is a limiting factor in the progression of challenge course activities since about 2/3 of the activities were conducted on the course which was permanently affixed outdoors.
3. Erosion in the facilitator's performance/commitment over a six-week period.
4. Facilitator performance deviation due to participant disposition toward activities.

Delimitations

1. 120 first-generation college students who qualified to participate in the University of New Mexico Low Ropes group.
2. Three separate three-hour sessions of facilitated low ropes and adventure activities with a self-concept focus.
3. The Low Ropes group school site and the University of New Mexico Low Ropes Course.

Definition of Terms

The realm of experiential education has a language all its own; therefore, it is imperative to describe a few of the definitions applicable to this study.

Experiential learning – a process of learning that allows students to actively and kinesthetically participate in the lesson.

Low Ropes Course (LRC) – the foundation of any experiential education experience (Priest, Gass, & Gillis, 2000). The low ropes course is a collection of cooperative activities assembled on the ground or 1ft-2ft off ground surface. Activities are developed for small cooperative group solutions. Low ropes activities are meant to develop confidence, communication, trust, problem solving and leadership.

Processing – a debriefing discussion following a cooperative activity involving the entire group. Here, participants are encouraged to revisit experiences and draw upon reflection and analysis to communicate their experience. Groups are guided to consider application to their larger common connection such as school or work-environment in order to create future change.

Facilitator – the leading instructor for the group participating in the experiential learning activities. This person is the authority for maintaining the physical and mental safety of the group. The facilitator guides the group through each activity while maintaining structure, goals, and the integrity of the lesson.

Challenge by Choice – a concept as simple as its title, in which participants may choose to participant in activities or stop participating at any point in an activity. All participants are introduced to this concept at the beginning of the session.

Full Value Contract (FVC) – to help create a group culture, which genuinely respects the right of an individual to choose with regard to degree of participation in any activity. Challenge by Choice can be used to help reinforce the message that an individual is to exert and take personal responsibility, choosing his/her behaviors and actions. Further, the principle recognizes that individuals potentially stand to learn and grow more by refusing to participate on occasions than unthinkingly and/or resentfully always participating.

First-Generation College Student – although no unified term exists, it describes a student for whom neither parent has obtained a bachelor's degree from a four-year institution of higher learning (Supiano, 2014). Sometimes this population may fall into two categories; (a) the student group finishing high school, and (b) students who acquire this title once enrolled in college for the first time (Supiano, 2014). For the purposes of this study, research participants were defined as category (a), the student group finishing high school.

Self-Concept – a theory of self-reflection, self-assessment, and self-schemas which focuses on disposition, ability, physical attributes, skills, occupation, and interests (Gerrig & Zimbardo, 2002).

CHAPTER II

Literature Review

Origins of the modern challenge course date back to the early 1970s (Prouty, 1990) and were developed out of military practices that aimed at developing the self-concept of individual and cohort participants. Going back further, ancient cultures often provided their children opportunities to engage in challenging risk-based tasks to learn the skills necessary to thrive in society (Miles & Priest, 1990). Challenge courses provide groups unexpected settings and sets of circumstances that they would not normally experience. Challenge course curriculum uniquely blend physical and mental challenges with the exposure to a distinct environment where participants negotiate between independence and trust to reach group teambuilding goals (Marsh, Richards, & Barnes, 1986).

One of the frequently shared psychological benefits resulting from challenge course activities for aberrant youth are in the areas of self-concept (Teaf & Kablach, 1987). Teaf and Kablach reported the ability to do completely new tasks, a variety of tasks, while having independence to complete a task without interruption. An intervention group was compared to a control group that did not participate in challenge course activities and who scored lower in independence. The independence of completing tasks is a cornerstone of challenge course curriculum, once parameters are established a group has the creativity to get to the solution a number of ways and without interruption.

Seminal research in challenge course activities by Clifford and Clifford (1967) suggested that the experience improved self-concept in participants. A baseline survey of self-concept was collected, and a post experience survey was given. The result showed that the experiences had a significant effect on self-concept. What is interesting to note is

that individuals with the lower baseline self-concept scores showed the largest gains of all participants. This has relevance to the purpose of this dissertation because the student participants in the study were first-generation college students. The first-generation population of students experience feelings of inadequacy in school, which result in lower feelings of self-concept when compared to their college heritage peers who are not first-generation or low-income (Bradbury & Mather, 2009).

A study of short-term challenge course participation was conducted using both the Tennessee Self-Concept Scale (TSCS) and the Coopersmith Self-Esteem Inventory (Gillet, Thomas, Skok, & McLaughlin, 1991). A pre and post measure was conducted over a six-day period and showed gains in Total self-concept, as well as two other subscales of the TSCS. Total self-concept is the most important measure of the Tennessee Self-Concept Scale (Fitts & Warren, 1996). Finkenberg, Shows, and DiNucci (1994) studied challenge course activities and the self-concept of college students using the TSCS and found that one group showed significant gains in three subscales and the second group showed significant gains in two subscales.

A meta-analysis of challenge course activities focusing on adolescents has shown evidence that self-concept was improved after their experience. Over 60 studies were reviewed in the area of self-concept, adolescents, and challenge course experiences (Cason & Gillis, 1994). Larger gains in self-concept occurred when the challenge course experience was over an extended timeframe. In addition, lower effect sizes were linked to quasi-experimental and experimental studies. A second meta-analysis focused on adolescents and self-concept showed that changes in self-concept were evident (Hattie,

Marsh, Neil, & Richards, 1997). Additionally, the meta-analysis results suggested that longer timeframes of activities aligned with greater change in self-concept.

Measuring the effects of a challenge course experience in a group of individuals with a wide variety of individual characteristics involves targeting specific group attributes. Most strive for outcomes such as teamwork, cohesion, communication, and cooperation. Although these traits can appear immeasurable, they are qualitative observations of positive human emotion. Positive experiences were found to increase self-esteem and heighten internalized locus of control (Rohnke, 1977). Locus of control refers to one's belief about what causes the good or bad events in their life. Those with a high internal locus of control believe that events result primarily from their own behavior and actions (Rotter, 1954). If a challenge course experience can be consistently associated with positive experiences, it is likely to build self-esteem and locus of control within participants. One's own behavior and actions are closely tied one's self-esteem and disposition.

Research in challenge courses has been conducted in a variety of domains. Goldenberg, Klenosky, O'Leary, and Templin (2000) examined outcomes related to socialization and individual growth among an expansive range of individuals aged 15-50, suggesting that group dynamics and personal gain were related to a challenge course experience. It also revealed a number of specific challenge course effects, such as building relationships as well as developing understanding, enjoyment, and feelings of accomplishment. This study revealed the possibility of primary and specific positive effects gained from the challenge course over a population age range that encompasses the majority of the adult population.

More recently, interesting findings in challenge course experiences were revealed with at-risk student groups. Students within one group said they could apply teamwork skills learned, because it made it easier to work with individuals with whom they became acquainted (Conley, 2007). Additional sentiments from participants included friendship development and trust. Some students commented that they could not really apply anything they had learned at a low ropes challenge course, because in class they worked as individuals to solve problems and not as team (Conley, Caldarella, & Young, 2007). Although an individual benefit was not conceptualized in this case, teambuilding was admittedly seen. Reaching half of the students positively is a sizable gain for at-risk adolescents and proved the value of the experience.

Depending on the needs of the group and factors such as time, group size, and facilitator experience, low ropes course goals can vary greatly (Haras, Bunting, & Witt, 2005). A group that is only intact for a short time, such as a summer camp, will reach their goals more easily in the challenge course. Current research has shown evidence that short-term gains and goals are seen over short periods and especially within the first six-weeks of the experience (Hatch, 2005).

If intact groups are to continue to learn from challenge course experiences, they will need more learning activities using principles of active learning (Bonwell & Eison, 1991). Active learning suggests that participants need to be actively involved in the material being covered. One method presented to reach this is cooperative learning (Bonwell & Eison, 1991). In challenge courses, cooperative learning involves group members converging to explore strategy and become active problem solvers. This

variable will remain a factor in every experience because each facilitator has a unique style and curricular attributes.

The principles taught in a challenge course-setting offer several dimensions from L. Dee Fink's *Taxonomy of Significant Learning* (2003). Specifically, they address principles in the Caring, Human, and Application dimensions. Caring and Humanistic aspects are addressed through full-value contracts, which outline group objectives and responsibility for the safety of team members. Application can be achieved through a wide variety of activities on the Challenge Course. One communication activity, called Logjam, asks participants to maneuver sequentially in tight spaces without talking. They may use symbols and non-verbal cues as tools to assist in completing the activity. Additionally, low ropes challenge courses promote some aspects of Bloom's Taxonomy of Educational Objectives (Bloom, 1956). The affective domain relates to the attitudes and feelings that result from the activity or learning process. This domain is reached at the end of an activity where students are able to process and share their emotion. The cognitive domain is promoted during the activity itself when group participants must display the ability to process and utilize information in a meaningful way so that they can complete the task. Developing a student's ability to access a variety of higher order functions will lead to the ability to solve complex problems that they will encounter in all realms of life. This will build confidence, therefore enhancing self-concept.

Positive findings in experiential education are symbolic, but so is skepticism. One such paradox is the debate over the lasting effects of challenge course experiences. Hatch (2005) revealed that, despite data indicating short-term gains in cohesion, individual and group effectiveness was not maintained over a two-month period. Finkenberg, Shows,

and DiNucci (1994) showed that challenge course experiences increased individual's self-efficacy, resiliency, and optimism, but left questions regarding the individual's ability to transfer what they had learned to other settings.

Doug Eadie's 2009 research supports this enigma of eroding positive findings. Eadie's findings reveal that positive outcomes reached by a school board that experienced a challenge course retreat had diminished just a few months after training. Board members described how they had made personal connections and communicated well in establishing working guidelines; yet, all was quickly forgotten when the school board members faced their workplace reality. Board members eventually returned to their old ways of bickering and creating tension. Similarly, participants in low ropes challenge courses had concerns in using it as a tool in becoming effective communicators. Some participants felt that there were too many people allowed to speak and make decisions at one time (Wolfe & Dattilo, 2006).

The literature indicates that challenge courses offer immediate team building benefits such as, socialization, cohesion, and communication. Contradicting research suggests that effects diminish over time and differences exist in individual perception. There are some additional limitations in the literature, which deserve mention. Such limitations include group size, facilitator experience, and motivation of students. Lack of a control group during challenge course research makes it complicated when trying to qualify the short-term or even long-term gains from the experience. Despite this limitation, many of the studies allowed for comparison in a pre/post-test reporting over time. Another limitation in this literature review is that there were several types of group organizations referenced. Even if the various groups had common goals of cohesion and

communication, they differed in terms of dynamics, such as experience, size, or organization. For example, some groups were well acquainted, and others had yet to meet each other. Another important limitation is the experience of the facilitators used in the challenge courses. The literature presented very little information regarding the role of the facilitator in the production of group goals. This is a very important issue to consider as the experience and organization of the facilitator may be the single most influential aspect in reaching outcomes (Henderson, 2009).

Overall, challenge courses offer immediate and noticeable effects toward team building goals. However, future research should be conducted to examine specific aspects that fall under team building. Such tenants include making social connections, developing communication and unity, and easing comfort levels.

Self-Concept

The term "self-concept" describes one's overall view of him or herself (Rosenberg, 1979). This may include several universal character traits found in terms such as "self-esteem," "self-efficacy," and "self-confidence." Self-concept encompasses seven unique traits that include the following descriptive categories: developmental, organized, evaluative, multifaceted, differentiable, and hierarchical (Shavelson, Hubner, & Stanton, 1976). Self-concept is not a tangible artifact within one's self (Rosenberg, 1979). Rosenberg argues that self-concept is the basic paradigm for explaining and forecasting the potential for how one will behave. Simply put, self-concept includes how we perceive ourselves, feel about ourselves, and behave in social settings. Social acceptance is a component in self-efficacy and self-esteem, which closely relates to self-

concept (Leary, 2004). Self-concept is something that is useful and drawn upon by teachers, counselors, facilitators and a wide variety of social scientists.

Viewing one's self in a social construct has multiple aspects, just as one has many social roles such as student, son/daughter, parent, employee, friend, or life-mate (James, 1983). With so many roles, individuals choose which are important to them and which are not. Individuals have the freedom to delineate who they are and who they want to become based upon how they prioritize the roles in their lives. Of the many roles that one plays, individuals will seek out success in the roles that are indispensable to them and care little if they fail in roles that they do not value. According to James, if one fails in a role that they value, their coinciding self-concept will be low. It is essential for one to identify goals for the roles they value in a realistic manner. Coincidently, it is just as important to vacate roles that one may not value because it can provide a great deal of emancipation for the individual to move forward (James, 1983). Self-concept may be the single most important factor for student success in evaluating students.

What makes self-concept relevant to this study is that participation in experiential education via challenge course aims to build many of the component traits that define self-concept. Experiential education may be transformative and allows individuals an authentic setting in which to engage with their own apprehensions, fear, confidence, feelings, sociability, and success.

First-Generation Students

Although no one definition of first-generation college students exists, first-generation students are typically described as the students of parents who did not graduate from a four-year university (Gibbons & Woodside, 2014). One element that is

clear regarding first-generation students is that they have the highest dropout rates of any subgroup in college (Arnett, 2015). Several factors influence first-generation college students during their educational acquisition process. These students do not have parents that they can call upon for advice in college, which is an obvious disadvantage for first-generation students in reaching their full academic potential. In addition, first-generation students tend to have a lower academic self-concept, identify more barriers in going to college, and have fewer repetitions and courses in STEM subjects (Gibbons & Woodside, 2014).

First-generation students are identified by other differences once they set foot on campus. These students are more likely to take remedial courses, have employment obligations, earn lower grades, and are more likely to attend school part-time, when compared to non-first-generation students. It is worth noting that there are even differences among first-generation students, depending on the type of college they attend and the environment that surrounds those (Housel & Harvey, 2011). For example, a first-generation student on scholarship at a private college or residential college can have a much different experience than a student attending a state sponsored college full-time who is also working part or full-time.

The majority of first-generation college students originate from low socioeconomic (SES) backgrounds and homes. Socioeconomics plays a large part in the graduation rates of all students. Longitudinal data from the 2008 cohort of high school graduates who fell within the top 80th percentile in SES went on to graduate college with a bachelor's degree at a staggering rate of 84% (National Center for Education Statistics, 2009). Conversely, the 2008 cohort of high school graduates who fell in the bottom 20th

percentile in SES went on to graduate college with a bachelor's degree at a mere rate of 39%.

First-generation students are the population of college students that are responsible for helping out their own families with childcare, financial support, and other household duties while in school (Ishitani, 2003). This pressure, given the multi-disciplinary rigor needed to finish a bachelor's program, is listed as one of the chief reasons for low graduation rates among first-generation college students (Ishitani, 2006). Families of first-generation college students depend on them for financial support. This situation often causes a ripple effect in their educational development, as a large number of these students only enroll half-time while working nearly or completely full-time (Bradbury & Mather, 2009). Making the transition into campus life may be difficult for these students due to the burden placed upon them by families and their increasing responsibilities. Families with an annual income of $50,000 or more produce college students that prove to have higher persistence and graduation rates. Students from homes with an income less than $50,000 are on average 50% less likely to graduate (Ishitani, 2006). A clear division of persistence and graduation rates is evident based upon the socioeconomic status of students who enter the collegiate ranks.

CHAPTER III

Methods

The purpose of this study was to examine the relationship between a challenge course program and the self-concept of first-generation college students. This chapter will be separated into several sections to describe the sample size and participants, research design, procedures, instruments, and data analysis.

Power Analysis

The sample size was determined through the use of a power analysis. The power analysis identifies the appropriate number of participants needed to find an effect (Cohen, 1988). Power is a vital concept because underpowered studies have a decreased chance of finding significance. The results for the power analysis revealed that the appropriate number of participants in this study was approximately 126, with 63 as part of the Low Ropes group participants receiving the LRC. The number of participants included in this study was 94.

The parameters set for the power analysis were set as follows:

- ANOVA
- Independent groups (one receiving treatment and one group is not)
- One tail (.05)
- Significance level = 0.05
- Power = 0

Power analysis is critical in experimental design. It identifies the requisite sample size needed to identify an effect/change through a determined degree of confidence. It also offers guidance for sample size when full power or requisite number of participants

are not obtained. For example, if the main effect/interaction is significant, acceptance of study findings have a higher degree of confidence (Cohen, 1988).

Participants

The participants in this study were students from the UNM College Enrichment and Outreach Programs (CEOP), which encompass about a dozen youth outreach programs for college and college-bound students. To meet the effect size requirements for this study, students were recruited from two very similar programs: Upward Bound and College Prep. Both These two college matriculation programs assist first-generation and low-income college students in the post-secondary school entrance process via dual enrollment and other strategies. In this study, Upward Bound is the Low Ropes Group and College Prep is the No-Low Ropes Group. Participants in both groups were secondary students in local public high schools. Students attended their respective program services at UNM in the summer, weekends, and after school weekday hours. This study occurred during the summer phase of programming of each program. Traditionally these groups stay intact from high school to college matriculation. Students join each of the programs at various points during their high school years, usually as underclassmen. Year of joining is determined by recruiting availability and is driven by student interest during school visits by each program. Services delivered to students includes; UNM concurrent enrollment, tutoring, cultural events, ACT test prep, essay development, FAFSA/scholarship services, and other college matriculation processes. All student participants in this study were first-generation college students. Students in the two programs were admitted based upon the eligibility standard of being a first-generation college student and/or originating from low – income homes as outlined by

the federal income guidelines or the state's free and reduced lunch program. Information identifying first generation status was obtained from the demographic survey. Student participants chose to apply to the program and to attend Saturday workshops.

Design

A repeated measures analysis of variance (ANOVA) was conducted to examine the change in self-concept sub-category scores of the TSCS:2 instrument. Assumptions associated with ANOVA and repeated –measures ANOVA's were tested prior to analysis. Analysis of the data collected from the survey was conducted using SPSS software. Condition and treatment of the experiment and subscales of the TSCS:2 were analyzed using a one-way ANOVA with the treatment as the between-subject factor and the subscale as the dependent variable.

Approval Process

As approved by the UNM Office of the Institutional Review Board, this research met the definition of minimal risk. The low ropes activity coupled with the surveys that asked students to reflect upon their experiences, classroom lessons, and other programming were part of the participants' normal curriculum in their dual credit No-Low Ropes group course. The only intervention was the TSCS:2 survey. Therefore, according to federal regulations §46.102(i), minimal risk was met because the probability and magnitude of harm or discomfort anticipated in the research was not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. Again, self-reflective surveys were a part of normal programming and the only intervention was a more developed survey.

The following procedures were implemented to provide informed consent to the students. A copy of the consent form was placed in the same folder as the survey and was reviewed with potential participants as part of the research introduction. The consent form was for the potential participants to keep, and they had it to follow along as it is was reviewed with them.

Once the participants provided consent to participate, the researcher measured self-concept as perceived by first-generation students via survey titled the Tennessee Self-Concept Survey 2 (TSCS:2). In addition, the researcher collected descriptive data via the survey. The final data collection included participants who completed the surveys and who participated in the low ropes course experience. Every participant took a pre and post survey. For research plan, approval, and supporting documents see Appendices B, E, F, G, H, I, J, K, and L.

Instrument

Survey

There was one codified survey instrument used to collect data for this study. The quantitative psychometric instrument used for this study was the Tennessee Self-Concept Scale:2 also known as the TSCS:2. The TSCS:2 measures multiple domains that included perception of self, attitudes, and feelings. When combined, all of these domains identified the self-concept of an individual on the TSCS:2 surveys. Each individual has some concept of self that they can share if willing and one of the simplest ways to obtain this is to ask them to describe their self-concept. Currently, the best way to assess self-concept is through a strategically designed self-report measure (Fitts, 1971). The TSCS:2 was modified in 1996 into its current form and has been used in a wide variety of clinical and

traditional research settings (Foundoulaki & Alexopoulos, 2004). This survey has been used in many settings and works well in measuring the relationship between self-concept and human behavior along with the use of a common implement such as a Low Ropes Course (Brown, 1998).

The TSCS:2 is available in two forms that are tailored for either adult or child. This study utilized the Adult Form which had been standardized with individuals aged 13-90 years, who read at or above a third grade level. The adult form is derived from five domains of responses consisting of 82 self-descriptive statements/questions. The responses available are "always true, mostly true, partly true, always false, mostly false, and partly false." Statements given by participants were scored positively and negatively. The estimated survey completion time was 10-20 minutes, and scoring of the TSCS:2 took about ten minutes using the provided Auto-Score Form. Each copy/survey of the TSCS:2 costs two dollars, and the administration manual costs $100. The TSCS:2 and its 82 question survey were spread across nine scoring subscales which included: Academic/Work, Identity, Satisfaction, Behavior, Moral, Personal, Family, Social, and Physical (see Table 1). A summary and total score were provided for each domain, with the total score being the most valued in interpreting overall perception. A low total score was suggestive of a survey participant who may have a lower self-concept, may have been indecisive, may have had a harder time dealing with life struggles, and may have doubted their own abilities. A high total score was suggestive of an individual who valued themselves and their ability to contribute to society.

Table 1

Scales on the Tennessee Self-Concept Scale -- Second Edition

Self-Concept Subscales	
Physical	Academic/Work
Moral	Behavior
Personal	Self-Criticism
Family	Total Self-Concept
Social	

The Self-Criticism subscale presents statements that are somewhat derogative about oneself, they are considered common character weaknesses that most would admit to having (Fitts & Warren, 1996). High Self-Criticism scores suggest a participant with a fit ability to reflect and aptitude for self-criticism. Lower Self-Criticism scores suggest a participant who is deliberately defensive and trying to present themselves in a positive light by denying common human shortcomings. This subscale encompasses 14 statements; examples of a Self-Criticism statement includes "I get angry sometimes" and "I gossip a little at times" (Fitts & Warren, 1996).

The Moral subscale observes a participant's ethical reflection (Fitts & Warren, 1996). High scores suggest an individual who is satisfied with his or her behavior as being virtuous and treating others with respect. A low score suggests intentions and instincts that supersede the individual's own moral values. The Moral subscale includes 12 questions such as "I am a morally weak person" and "I shouldn't tell so many lies". Moral is a subscale that is reflective in a variety of questions that range from personal, societal, and religious.

The subscale Personal is a measure of one's interactions with others (Fitts & Warren, 1996). High Personal scores suggest positive assimilation within social structures and a balanced lifestyle. Lower Personal scores suggest an individual whose self-concept is dependent upon outside circumstances and as a result, their positions are ever changing. The Personal subscale includes 12 questions such as, "I am nobody", "I'm not the person I would like to be", and "I do things without thing about them first". Very low Personal scores suggest internal strife and may signal disturbing behaviors.

The subscale Family refers to one's own view relative to their immediate families and households. It is worth noting that, for children, relationships with teachers can heavily influence their concept of family and the subscale Family (Fitts & Warren, 1996). This subscale may also suggest how participants view their personal conduct, educational ability, and performance. High Family scores suggest someone who is content with the level of care that he or she shares with their family structure and closest relatives. Lower Family scores suggest individuals who may be disconnected and detached from any sense of family. Examples of Family statements include, "I have a happy family" and "I should love my family more".

The Social subscale is similar to the Family subscale but inserts friends and regular acquaintances. The Social subscale represents an overall sense of belonging and how an individual interacts within social structures and with others (Fitts & Warren, 1996). High Social scores suggest individuals who are cordial, mannered, and smile. Low Social subscale scores indicate hostility toward social spaces and interacting with others. The Social subscale includes 14 questions such as, "I'm mad at the whole world" and "Most people are good". It is noteworthy that children include their school and home

community along with their group of friends within their development of social self-concept (Fitts & Warren, 1996).

The subscale Academic/Work is a self-reflection and a view of how others view an individual in a school or work setting. Academic/Work consists of 10 questions, example questions include, “Other people think I’m smart” and “I’m not as smart as the people around me” (Fitts & Warren, 1996). This subscale is the most correlated of all of the TSCS:2, scores to tangible school grades. High Academic/Work scores suggest individuals who are adept and confident in school and work settings. These individuals are likely to seek the advice of others and turn every situation into a positive opportunity. Low Academic/Work scores suggest and individuals who struggle in changing environments and situations where progress is routinely measured.

The Behavior subscale is considered a supplementary score and pools together all of the other subscales to create a summative score. The value of Behavior is the ability to distinguish patterns due to the inclusion the most important statements from all of the other subscales. It aims to answer, “This is what I do, this is how I behave” (Fitts & Warren, 1996). Low Behavior scores suggest an individual who is impulsive and reactive. High Behavior scores suggest a well-tempered individual who includes logic and reason into their thought process.

The TSCS:2 is equipped with a summative measure titled Total. According to Fitts and Warren (1996), the summary score Total contains the greatest significance of all of the scores derived by the TSCS:2, as it is a composite representation of all of the subscales. It is a representation of how an individual view themselves in relation to all other measures of the TSCS:2. Individuals with high Total scores tend to have a positive

view of themselves and view themselves as positive contributors of society (Fitts & Warren, 1996). Those with very high Total scores may be uneasy when others do not confirm their own view of self in their social circles. They also are complicit to take on improbable expectations and place blame/negativity on others they depend on for support. Low Total scores indicate an individual who has a hard time dealing with the dynamics of life and has a low self-worth. Consequently, this often leads to a catalog of other problems for an individual.

Validity

Validity determines whether the test, or in this case survey, actually measures what it claims to measure. The TSCS-2 developed by Fitts and Warren (1996) is one of the most universally adopted self-report measures of self-concept. The Tennessee Self-Concept Survey has proven to produce valid scoring inferences. Scoring inferences for the TSCS:2 has been evaluated in four domains which includes content, construct, concurrent, and discriminant.

Content Validity

The TSCS:2 was standardized on 3,000 subjects, ages 7–90 years, and may be administered to individuals or groups in about 10 to 20 minutes (Fitts & Warren 1996). Fitts and Warren reported acceptable levels of score validity for the TSCS:2. Two strands of independent research were used to determine content validity for the TSCS:2, Levin, Karnie, and Frankel (1978) endorsed the TSCS:2 to be acceptable between content and dimension (as cited in Fitts & Warren, 1996, p. 62). The original self-description questions were a derivative from the works of seven clinical psychologists (Fitts & Warren, 1996). Over the past several decades there have been many analytical factor

studies which have analyzed the TSCS:2. According to Fitts and Warren (1996), nearly a dozen studies have all confirmed that the multi-dimensional domains of self-concept are appropriate and exemplified.

Construct Validity

The TSCS:2 subscales earn high scores in being able to test and quantify what it claims to measure. When compared to other metrics that would be expected to relate to the paradigm of overall self-concept, the TSCS:2 has proven to be related to self-concept. The TSCS:2 has correlation of r=.45 with the Jackson Personality Inventory; r=.68 with the Janis-Field Feelings of Inadequacy Scale; r=.68 with the Self-Rating Positive Affect Scale; and r = .71 with the Minnesota Multiphasic Personality Inventory (Fitts & Warren, 1996). The comparative numbers listed above reveal that construct validity scoring is high when compared to other commonly used self-concept measures.

Reliability

Reliability determines whether the results can be repeated consistently over the long term. The TSCS:2 shows the ability to correlate reliable scores in two domains which are internal consistency and test-retest stability. According to Fitts and Warren (1996), reliability for the TSCS:2 is adequate, with lower internal consistencies on subscales than Total Self-Concept, ranging from $\alpha = 0.73$ to 0.93. Test-retest reliability scores ranged from $r = 0.47$ to $r = 0.83$. These numbers/scores suggest an acceptable scale of internal consistency. The test-retest reliability revealed a correlation of 0.82 which indicates a high correlation and assurance in the TSCS:2 in its ability to measure individual differences. Explicit data were gathered to deliver basic information about the general features regarding the participant sample. Explicit statistics include information

for confounding variables such as: age, gender, race, first-generation, social commitments, and housing status.

Procedures

There were two participant groups: Low Ropes group and No-Low Ropes group. Low Ropes group participated in a low ropes course experience from beginning, with a pre and post survey before and after the experiences. The No-Low Ropes group participated in their normal No-Low Ropes group curriculum, with a pre and post survey at week one and week three. Both participant groups took the TSCS:2 pre-survey on the same day, approximately 30 minutes prior to the first low ropes course experience for Low Ropes group. No-Low Ropes group also took a post-survey on the last day of the first Low Ropes group low ropes course experience. The Low Ropes group took an additional survey at the completion of their low ropes course experience.

Data were gathered from the surveys that were completed from the pre and post survey periods. Both groups participated in a 12 hour low ropes course program that extended over a six-week period per group, four hours per session, and once per week alternating weeks with one week on and one week off. It took six weeks to complete each group and twelve weeks overall. This survey period took place in a UNM classroom with all students using a folder as a partition and students either took the survey or not based upon their desired participation. The final survey for No-Low Ropes group was offered in the same UNM classroom location as the first previous survey periods. Students were divided into two groups by separating them in classroom at the time of survey. This is normally how the students were divided for such activities. Figure 1 and 2 below summarizes the research process for each group.

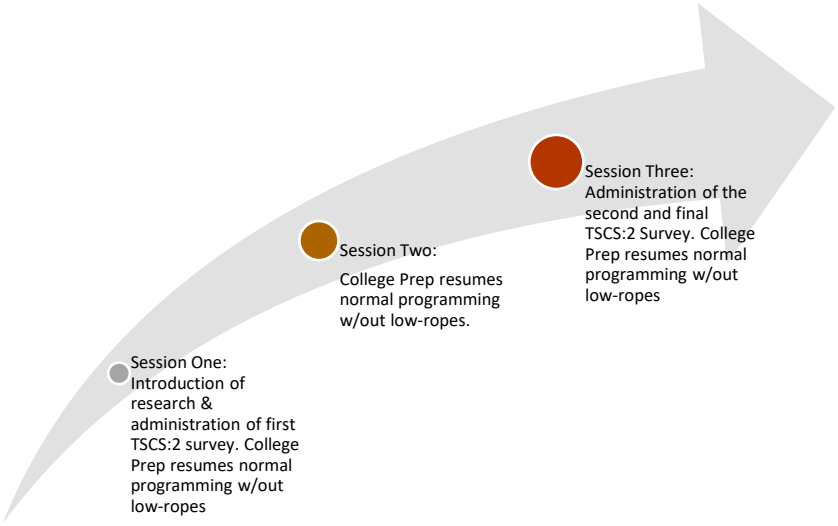


Figure 1. Low Ropes group Research Schedule

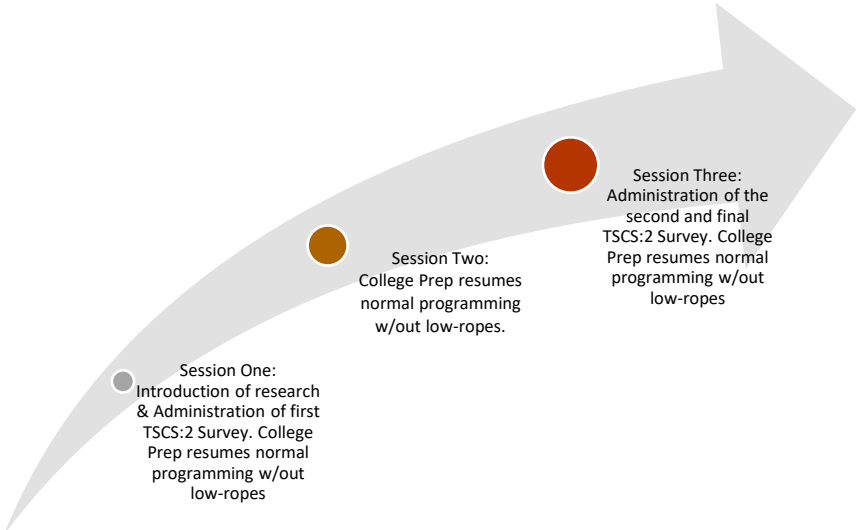


Figure 2. No-Low Ropes group Research Schedule

The site chosen for this study was the UNM low ropes course (LRC). This LRC facility is housed on Johnson Field and is managed by the Office of Student Affairs. This location was chosen based upon its proximity to the participants who were on campus. The course is certified by the Association for Challenge Course Technology (ACCT) to meet the specific requirements of a low ropes course. Permission to use the course was granted by the Low Ropes group director who is part of the structure within the UNM Office of Student Affairs. The study utilized LRC facilitators from the Low Ropes group who were experienced and trained in facilitation of LRC experiences. The facilitators utilized practices and facilitation skills that met ACCT facilitation standards. The UNM LRC facilitators were trained to deliver activities in a 20-hour training session on the low ropes course. In addition, facilitators were required to complete a summer apprenticeship in which they shadowed and led participants under the guidance of senior facilitators. There were a minimum of two facilitators for every group session in this study. The UNM LRC is a challenge-by-choice facility, which empowers the individual to decide how and when they will participate in activities. The facilitators were trained to encourage groups to explore individual risks in challenges while positively promoting the benefits.

Positionality

The participants were a combination of UNM pre-college programming students from the Low Ropes group and the No-Low Ropes group. I (the writer and researcher) served in a traditional school principal's role for the Low Ropes group students who participated in the LRC. The No-Low Ropes group students had no previous experiences with me. I was also the direct supervisor of the low ropes course facilitators (instructors)

that presented the activities to the study participants. I trained the facilitators over the previous 5-7 years and worked closely in a variety of experiential education settings with these individuals. I invested significant time training dozens of facilitators, working with students, and developing curriculum for the low ropes course since 2003. I was responsible for the modification of the traditional low ropes course model from once serving small group sizes (10-15) to now serving groups of 100+. This modification was made to meet the needs of large student orientation groups and others that were frequently denied access to experiential education on the UNM low ropes course due to group size being so large. My background as a physical education teacher made such modifications possible, because I incorporated pedagogy and classroom management theory. Put simply, I grouped students appropriately, trained additional staff, and created a rotational system that makes usage of unoccupied equipment that normally sits dormant in a small group setting. In this new system, the entire course was being used at once with each facilitator running a small group activity simultaneously.

As a result, a sustainable practice of large LRC group facilitation was born. UNM New Student Orientation along with a host of other programs have continued to implement low ropes course groups. I positioned myself as an LRC professional who had a great stake in at least 1/3 of all groups that entered the on an annual basis. In this study, my position served as both the direct supervisor of some of the participants, as well as the facilitator of all participants.

Facilitators

The researcher was the direct supervisor for the two facilitators that were part of the study. Jeff and Ari facilitated groups for several years and had approximately 12 years

of combined experience. Jeff was considered a veteran in the low ropes course and went to annual trainings at the American Challenge Course Technologies certification conferences. Jeff was employed by Low Ropes group as an Administrative Assistant and was a UNM student. Ari was an experienced facilitator of about four years and was exclusively trained by the researcher (Chris Luna) and Jeff. Ari was a UNM student who worked for Low Ropes group as a Lead Educational Mentor/Tutor. The researcher was the individual responsible for introducing the low ropes course methods and 11 years. The researcher was well versed in LRC facilitation, was considered an expert due to his experience teaching low ropes course in a structured school setting, training of teachers / staff members, and was trained by three different low ropes course experts in both short and long-term settings.

Analysis

The Statistical Package for Social Science (SPSS) was used to analyze the data set. All of the tests for statistical significance were set at an alpha level of .05 and a confidence level of 95%. The statistical method, multiple one-way ANOVA statistical analyses was chosen as an appropriate tool to analyze the researcher's data for hypotheses and research questions. Preliminary analysis included tests for assumptions associated with ANOVA and repeated-measures ANOVA. Tests included normality and homogeneity of variance

1. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Self Concept subscale, between students who participated in a short term low ropes course program and those who did not?

a. $H1_0$: There is no effect on self-concept pre/post Self-Criticism sub scores

2. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Social subscale, between students who participated in a short term low ropes course program and those who did not?

    a. $H1_0$: There is no effect on self-concept pre/post Social sub scores

3. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Family subscale, between students who participated in a short term low ropes course program and those who did not?

    a. $H1_0$: There is no effect on self-concept pre/post Family sub scores

4. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Academic/Work subscale, between students who participated in a short term low ropes course program and those who did not?

    a. $H1_0$: There is no effect on self-concept pre/post Academic/Work sub scores

5. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Moral subscale, between students who participated in a short term low ropes course program and those who did not?

    a. $H1_0$: There is no effect on self-concept pre/post Moral sub score.

6. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Personal subscale, between students who participated in a short term low ropes course program and those who did not?

    a. $H1_0$: There is no effect on self-concept pre/post Personal sub scores

7. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Total subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Total sub scores
8. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Behavior subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Behavior sub scores
9. RQ: Was there an effect on self-concept, as measured by the TSCS:2 Physical subscale, between students who participated in a short term low ropes course program and those who did not?
    a. $H1_0$: There is no effect on self-concept pre/post Physical sub scores

CHAPTER IV

Results

The focus of this research project was to observe the relationship between a low ropes course experience and the self-concept of first-generation college students using the measure Tennessee Self-Concept Survey:2 (TSCS:2). This chapter will present the findings for the statistical analyses conducted to address the research hypotheses outlined at the beginning of the study.

Analysis of Treatment

Control and treatment of the experiment and subscales of the TSCS:2 were analyzed using a one-way ANOVA with the treatment as the between-subject factor and the subscale as the dependent variable. Descriptive statistics for time are in Table 2.

Table 2

Means for all conditions low ropes course (LRC) on self-concept outcome measures (Standard errors in parentheses)

Subscale	LRC- Pre	No LRC- Pre	LRC- Post	No LRC- Post
Self-Criticism	3.13 (0.08)	3.08 (0.133)	3.12 (0.09)	3.27 (0.14)
Behavior	3.71 (0.05)	3.62 (0.08)	3.71 (0.06)	3.53 (0.09)
Physical	3.64 (0.07)	3.55 (0.10)	3.73 (0.07)	3.53 (0.11)
Moral	3.71 (0.06)	3.68 (0.09)	3.89 (0.06)	3.54 (0.10)
Personal	3.96 (0.05)	3.76 (0.13)	4.09 (0.07)	3.77 (0.14)
Family	3.81 (0.08)	3.70 (0.12)	3.77 (0.08)	3.57 (0.13)
Social	4.05 (0.08)	3.82 (0.08)	3.87 (0.07)	3.60 (0.09)
Academic	3.69 (0.09)	3.60 (0.11)	3.85 (0.12)	3.50 (0.10)
Total	3.68 (0.08)	3.81 (0.05)	3.39 (0.16)	3.90 (0.07)

Description of Study Participants

The grade levels of the participants in both groups are presented below in Table 3. This information was self-reported by participants in a demographics survey collected prior to the TSCS:2.

Table 3

Demographics by group and level of grade

Research Group	Freshman	Sophomore	Junior	Senior
Low Ropes group	11	21	18	12
No-Low Ropes group	0	15	15	0
Total	11	36	33	12

Note. Two unanswered responses

The gender distribution of participants in both groups is presented in Table 4 below. This information was reported by participants in the demographic survey that was taken prior to the TSCS:2.

Table 4

Gender Frequency Distribution of Participants by Research Group

Research Group	Male	Female	% Male	% Female
Low Ropes group	26	36	41.9%	58.1%
No-Low Ropes group	10	20	33.3%	66.6%
Total	36	56	39.1%	60.9%

Note. Two unanswered responses

Demographic Information

Table 5 displays the self-identified ethnic background of the participants of both groups. The demographic survey presented six choices for ethnicity. These data were self-reported by participants in the study.

Table 5

Ethnic Distribution

Ethnicity	Group One	Group Two	Total
Black	3 (.05%)	0 (.0%)	3 (.03%)
Hispanic	56 (90.3%)	28 (100)	84 (91.3%)
Native American	2 (.03)	0 (.0%)	2 (.02)
White	1 (.01)	0 (.0%)	0 (.01%)
Asian	0 (.0%)	0 (.0%)	0 (.0%)
Other	0 (.0%)	0 (.0%)	0 (.0%)
Total	62 (100%)	28 (100%)	92 (100%)

Note. Two unanswered responses

Statistical Findings

Assumptions

Assumptions associated with ANOVA and repeated-measures ANOVA were tested. Tests included normality and homogeneity of variance. In this study, the group sizes were unequal and assumption of homogeneity of variance was violated because of imbalance. This finding means that there is a possibility that the *F* statistic was biased and that there could be a higher possibility of a Type II error (not finding a significant finding when one really exists). The significance level in the data set of this study could be overestimated, which may cause a decrease in the power of the test. Effects are harder

to detect in smaller sample sizes, which may lead to falsely failing to reject the null hypothesis. However, ANOVA is rather robust to this issue, residual data were within normal limits, and no adjustment was made. Conversely, Power is established on the smallest sample size, so while it does not diminish power to garner more observations in the larger group, it is not of any further benefit either (Keppel, 1991).

For assumptions associated with normality, visual analysis found the data to meet the assumption of normality. The histograms displayed a normal curve. ANOVA is very robust in regard to violations of normality and all of the data fell within those guidelines. All graphs and tables for these analyses can be found in Appendix A.

Primary Analysis

Primary analysis consisted of an independent analysis of each research question. These included differences in mean scores for Self-Criticism, behavior, moral, physical, social, academic/work, family, and total self-concept. Source tables can be found in Appendix C-D. For each analysis, a repeated measures analysis of variance (rm-ANOVA) was conducted with condition as the between subjects factor and the dependent variable score of interest as the within subjects factor (subscale scores).

1. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Self-Criticism subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was not significant, $F(1,89) = 0.11$, $p = 0.74$. At the pre-test, the mean for Self-Criticism was 3.11 and at the post-test the mean score was 3.17. Participants did not change significantly in Self-Criticism. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 2.47$, $p =$

0 .12. The participants who participated in a low ropes course did not have a greater change in Self-Criticism (M_1=3.13 and M_2=3.12) than participants who did not participate in a low ropes course (M_1=3.08 and M_2=3.27).

2. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Behavior subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was not significant, $F(1,89) = 1.97$, $p = 0.16$. At the pre-test, the mean for Behavior was 3.68 and at the post-test the mean score was 3.65. Participants did not change significantly in Behavior. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 1.12$, $p = 0.29$. The participants who participated in a low ropes course did not have a greater change in Behavior (M_1=3.71 and M_2= 3.71) than participants who did not participate in a low ropes course (M_1=3.68 and M_2=3.53).

3. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Physical subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was not significant, $F(1,89) = 1.69$, $p = 0.20$. At the pre-test, the mean for Physical was 3.64 and at the post-test the mean DV score was 3.66. Participants did not change significantly on Physical. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 1.31$, $p = 0.26$. The participants who participated in a low ropes course did not have a greater change in Physical (M_1=3.64 and M_2= 3.73) than participants who did not participate in a low ropes course (M_1=3.55 and M_2=3.53).

4. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Moral subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was significant, $F(1,89) = 3.74$, $p = 0.06$. At the pre-test, the mean score for Moral was 3.70 and at the post-test the mean score was 3.77. Participants did not change significantly in Moral. The interaction between time of TSCS:2 survey administration and condition was significant, $F(1,89) = 11.14$, $p = 0.001$. The participants who participated in a low ropes course did not have a greater change in Moral (M_1=3.71 and M_2=3.89) than participants who did not participate in a low ropes course (M_1=3.68 and M_2=3.54).

5. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Personal subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was significant, $F(1,89) = 4.74$, $p = 0.03$. At the pre-test, the mean for Personal was 3.89 and at the post-test the mean DV score was 3.98. Participants did not change significantly in Personal. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 1.53$, $p = 0.22$. The participants who participated in a low ropes course did not have a greater change in Personal (M_1=3.96 and M_2=4.09) than participants who did not participate in a low ropes course (M_1=3.89 and M_2=3.77).

6. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Family subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was not significant, $F(1,89) = 1.50$, $p = 0.22$. At the pre-test, the mean for Family was 3.77 and at the post-test the mean DV score was 3.71. Participants did not change significantly in Family. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 0.99$, $p =$ 0 .32. The participants who participated in a low ropes course did not have a greater change in Family (M_1=3.81 and M_2=3.77) than participants who did not participate in a low ropes course (M_1=3.70 and M_2=3.57).

7. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Social subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was significant, $F(1,89) = 4.87$, $p = 0.03$ At the pre-test, the mean for Social was 4.04 and at the post-test the mean DV score was 3.87. Participants did not change significantly in Social. The interaction between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 0.12$, $p =$ 0 .72. the participants who participated in a low ropes course did not have a greater change in Social (M_1= 4.05 and M_2=3.87) than participants who did not participate in a low ropes course (M_1= 3.82 and M_2 = 3.60).

8. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Academic/Work subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was not significant, $F(1,89) = 2.69$, $p = 0.11$. At the pre-test, the mean for Academic/Work was 3.66 and at the post-test the mean DV score was 3.73. Participants did not change significantly in Academic/Work. The interaction

between time of TSCS:2 survey administration and condition was not significant, $F(1,89) = 2.41$, $p = 0.12$. The participants who participated in a low ropes course did not have a greater change in Academic/Work (M_1=3.69 and M_2=3.85) than participants who did not participate in a low ropes course (M_1=3.60 and M_2=3.49).

9. Research Question: Was there a change in self-concept, as measured by the TSCS:2 Total subscale, between students who participated in a short term low ropes course program and those who did not?

The main effect of time was significant, $F(1,89) = 10.28$, $p = 0.002$. At the pre-test, the mean for Total self-concept was 3.76 and at the post-test the mean DV score was 3.74. Participants changed significantly in Total self-concept. The interaction between time of TSCS:2 survey administration and condition was significant, $F(1,89) = 6.71$, $p = 0.01$. The participants who participated in a low ropes course had a greater change in Total self-concept (M_1=3.81 and M_2= 3.90) than participants who did not participate in a low ropes course (M_1=3.68 and M_2=3.39). See Figure 3.

A post-hoc analysis for effect size using an Eta squared was conducted. The effect size for eta squared (η^2) is measured to be small at 0.02, a medium effect at 0.13, and large if the effect size is above 0.26 (Cohen, Cohen, West, & Aiken, 2003). Effect size is a significant outcome of empirical studies such as this, and it can highlight the significance of the results (Lakens, 2013). The interaction between time of TSCS:2 survey administration and condition was significant, $F(1,89) = 6.71$, $p = 0.01$, with an effect size of η^2=0.36. This means that 36% of the total variance could be accounted for by being in either one of the groups. This means that the likelihood that study results

could be replicated in other research is high according to effect size ranges (Cohen, Cohen, West, & Aiken, 2003).

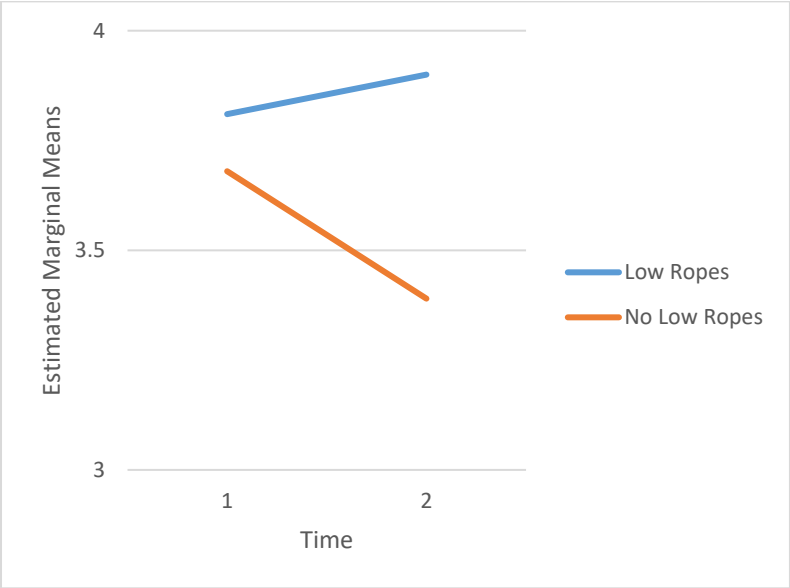


Figure 3. Estimated marginal means for DV Total

CHAPTER V

Discussion

Study Overview

The focus of this research was to examine if participation in a low ropes course (LRC) experience revealed a relationship between a LRC experience and the self-concept of first-generation colleges students enrolled in a University of New Mexico College Prep program for secondary school students. A convenience sample of 94 study participants registered into a yearlong dual credit course at the University of New Mexico was used to capture study participants. Participants completed two surveys (pre/post), during week one and week three of a three-week period. There were two participant groups: 1) Low Ropes group, received a 12-hour LRC experience divided equally into three sessions during the survey period; 2) No-Low Ropes group, did not receive an LRC experience during the survey period and remained in the classroom setting. Both participant groups took the TSCS:2 pre-survey approximately 30 minutes prior to the first LRC experience for Low Ropes group and the first classroom session for No-Low Ropes group. Both groups also took a post- experience survey on the last day of the Low Ropes group's third and final LRC experience and No-Low Ropes' third classroom session. Data were collected from the surveys that were completed from the pre and post survey periods. The Low Ropes group participated in a 12-hour LRC program that extended over a three-week period, four hours per session, and once per week. It took three weeks to complete the data collection period.

For first-generation college students, self-concept and personal confidence has as much to do with the success as academic performance. This may consist of the ability to

adhere to and create an academic plan, navigate campus life, social structures, and the intrinsic qualities that motivate daily action. How well a student feels about their ability to complete the aforementioned tasks is referred to as *self-concept*.

The data revealed that the Low Ropes group students benefited from the low ropes course. Overall, Self-Concept survey scores improved after the LRC experience and significance in Total self-concept was present. This may have a profound impact on the classroom setting. If the curriculum includes low ropes course or similar experiences, teachers may have an easier time creating a warm learning environment based upon students having had the opportunity to engage with one another in authentic experiences. This study found significance in the two focus areas of the metric, which were time and group. The main effect of time was significant, $F(1,89) = 10.28$, $p = 0.002$. This valuable finding suggests that time spent on a ropes course positively changed total self-concept. The interaction between time of TSCS:2 survey administration and condition was significant, $F(1,89) = 6.71$, $p = 0.01$. These data demonstrated that there was a significant improvement in self-concept of the sample of Low Ropes Group compared to the No-Low Ropes, who did not receive the LRC experience. This valuable finding strongly suggests that a group who receives an LRC experience will improve self-concept comparted to a group that does not. This change shows a Total score that indicates students were able to maintain and continue building their self-concept during each LRC session. The use of the Total score as the measurement in each hypothesis is correct since it is considered by the authors to be the representation summary of all of the subscale scores (Fitts & Warren, 1996). The data presented indicated that the group that received the LRC improved Total self-concept and the group that did not showed a decrease in

self-concept. These data met significance in the most important summative score established by the survey. As a result, the research data supported with significance that a low ropes course experience increased the self-concept of first-generation college students.

Positive findings in experiential education are symbolic, but so is skepticism. Hatch (2005) revealed that despite data indicating short-term gains in cohesion, individual and group effectiveness was not maintained over a two-month period. This short-term control is what this research had explored. Finkenberg, Shows, and DiNucci (1994) exposed that challenge course experiences increased individual's self-efficacy, resiliency, and optimism, but left questions regarding the individual's ability to transfer what was learned to other settings. Eadie (2009) revealed that positive outcomes attained by a school board that experienced a challenge course retreat had diminished just months after training. Board members described how they had made personal connections and communicated well in establishing working guidelines; yet, all was quickly forgotten when the school board members faced their workplace reality. Board members eventually returned to their old ways of bickering and creating tension. Similarly, participants in low ropes challenge courses had concerns in using the experience as a tool in becoming effective communicators. Some participants felt that there were too many people allowed to speak and make decisions at one time.

Results from this study have theoretic positions to add to our identification of how experiential education curriculum impacts self-concept and the learning environment and in its relationship to first-generation college students. The results will be discussed in relationship to the research question; was there an effect of self-concept as measured by

the TSCS:2 between students who participated in a short term low ropes course program and those who did not. The relationship of the main hypotheses tested for Self-Concept were also evaluated.

The hypotheses proposed an effect on Self-concept after students participated in a LRC experience. It was expected that students who received the LRC experience would change in self-concept as measured by the survey compared with those students that did not receive the LRC experience. This hypothesis was supported by these results. As the most important measure, *Total* revealed change for the Low Ropes group. There were group differences suggesting that the LRC experience improved Self-concept as measured by the TSCS:2. Specifically, the LRC experience had a greater change in Total self-concept (M_1=3.81 and M_2= 3.90) compared with participants who did not participate in a low ropes course (M_1=3.68 and M_2=3.39). The lack of change in Low Ropes group and No-Low Ropes group in the other sub-categories of self-concept came as a surprise. There are potential reasons for why this finding was absent in the data set. First, the unbalanced division of the participant groups, which was 2:1. Second, small sample size reduced the power of the study in finding significant group differences. Third, there could be no differences among the two groups of study participants. Finally, the No-Low Ropes group curriculum and instruction could be similarly prominent in the subscale context. The unbalanced nature of the groups presented a 2:1 ratio in which all of the No-Low Ropes group were garnered for the study and only about half of the Low Ropes Group were garnered. The No-Low Ropes group displayed a rapport that showed a closer bond from the very beginning, which was evident in the first survey as they assisted one another in translating some of the survey questions from Spanish to English in a

noticeably friendly way. In contrast, Low Ropes Group would ask their teacher supports who were near if they needed translation rather than their peers. This is an observation is worth noting because the No-Low Ropes group was a closer group to start and the Low Ropes group needed hours of team building experiences to form a similar dynamic.

Total Self-concept is the single most important measure of the TSCS:2. It is one's reflection of whole self-concept and accompanying degree of self-esteem (Fitts & Warren, 1996). In addition, self-concept might be the single most important factor for student success (James, 1983). Compared to the other survey subscales, Total Self-Concept scores displayed the strongest correlations. Participants in the LRC experience had greater change in Total Self-Concept, and the participants who did not participate in the low ropes course experience during this period showed a clear decrease in Total Self-Concept.

Limitations

This research study had limitations that should be discussed. First, the groups were not completely randomized. The No-Low Ropes group included all participants within the program, and all students chose to participate in the study. In this case, students were part of an intact group that was gathering for the first time. The fact that all students chose to participate is notable. Grouping for the Low Ropes Group included 60 students, which represented about half of the students in the program. The Low Ropes group and the No-Low Ropes group were pooled from the students who both decided to come to programming on Saturday and chose to be part of the study. The fact that the sample was not randomly selected nor randomly assigned into groups is of importance. Random assignment confirms that participants in a cause and effect study are equitable.

Random assignment inhibits one's history from triggering an irrelevant variable within the experiment and the only time it should be negotiated is for ethical reasons (Ong-Dean, Huie Hofstetter, & Strick (2011). In this study, both consenting programs wanted all students to have a chance to participate and remain in their respective cohorts. Ethically speaking, the research did not want to exclude students from the experience.

The second limitation to the study is that it was underpowered. The power for this study was set at N=126, and the actually power achieved for this study was N=94. The fact that this study only met 75% of Power is mentionable, because the sample size was 32 participants short of reaching full power. Since smaller samples produce reduced power, a small sample size may not be able to detect an important difference. In addition, small samples destabilize external and internal validity. However, at 75% power, it has not been determined that this is a very small sample size.

The ability for students to fully understand the survey questions may have been a limitation. For example, at least 30 of the participants were individuals with whose primary or first language was not English, and many participants were consulting one another to clarify items. This happened at many points during the survey completion even though participants had the option to ask the researcher for clarification. In addition, the wording of some questions seemed to confuse some participants. For example, one question asked, "I quarrel with my family", in this case many students did not understand what the word "quarrel" meant. This was known when students asked what the word meant and they commented that the word argue would've made more sense to them This was discovered after the survey when students began to talk about survey items and asked what the word "quarrel" meant. This scenario of consulting friends and being briefed on

the study participation may have caused some to be influenced by what is called the Hawthorne effect. The Hawthorne effect is when a participant's behavior is altered because they know they are being studied. The first-generation students in this study were briefed on the study, and this may have had an effect on responses and, therefore, may have affected results (Gay, 1996).

The experience and skill level of the low ropes course facilitator may be considered a limiting factor. The development and socialization of a facilitator is unique, and no two individuals are alike. The training, skills, experiences, and approaches can produce a wide range of individuals from courses all over the country. It is worth recalling from the literature discussion that the ability of the facilitator could have as much to do with the success of a LRC group as the group itself (Schoel, Prouty, & Radcliff, 1988). The facilitator may have added to Procedural Bias as the structure added undue pressure. This information is of considerable importance to this research. The facilitators' natural flow and delivery were impacted by the protocol of the study. The formal organization and structured approach at times seemed like the laboratory adherence to protocol overran the facilitator delivery rather than the typical relaxed approach, which is filled with much more discovery and overall free will. The participants knew they were part of a study and had the overtone to match. The same was true about the facilitators. They had the aura as if they had to be more serious or intentional in delivery, which was observed during each session.

Of the limitations, two stood out as influential to this research: facilitator performance and the TSCS:2 survey. The TSCS:2 survey and the accompanying protocol made for a more structured environment. Participants normally receive the LRC

experience in a relaxed setting without rigid protocol. For example, adhering to time constraints was part of the experience when normally time is much more flexible in the absence of IRB protocol. In this study, facilitator ability was hindered. LRC facilitators are not trained to be part of such a formal process being attached to experiential education. In general, the environment was intentional, and the best way to pronounce it is with a description being compulsory or forced.

Recommendations for Future Research

It would be beneficial to replicate this study, since the population of participants was previously unexamined. It is strongly recommended that the study groups be chosen in a more random manner and from one large pool of students rather than students with similar characteristics from two separate groups. Efforts should be made for a replicated study to reach full power, so that the strength of the findings is more substantial. The time span of the study may also be of importance for future research. Based on similar short-term studies, there is a significant body of literature that suggests the longer the intervention the more significant the results. It is recommended that a duplication of this study be carried out over several months rather than several weeks. Increasing the amount of intervention time may be the most efficient way to study the relationship between self-concept, the low ropes course, and first-generation student populations.

The practical significance of this study's findings may have implications for the classroom and/or group setting. Teachers often tell their class that they want them to work together as a cooperative team without providing a framework or example of requisite behaviors. It would be valuable for teachers to offer students authentic experiences to practice cooperation, teamwork, and collaboration with their peers prior to engaging in

traditional classroom interactions. The low ropes course and accompanying cooperative activities should be used as one of many classroom or group building tools. Students innately will have a wide variety of learning styles it would make sense to use an array of teaching tools to reach the as many students as possible. low ropes course activities may very well provide the tacit learning situations that are becoming more and more absent in the today's education landscape.

Conclusion

The purpose of this research was to examine the relationship between challenge courses and the self-efficacy of first-generation college students. The findings revealed that students who participated in the LRC during the survey period experienced significant change in the most important measurable sub-category (Total), as identified by the survey authors (Fitts & Warren, 1996) compared to the students who did not participate in the low ropes course. The change that occurred may serve as a marker for enriching curriculum design and instructional techniques in pre-No-Low Ropes groups. LRC instructional tools and strategies may be used to support the population of pre-college students who are not officially enrolled in a program, such as students in secondary school who may have an LRC or similar experience as part of their high school curriculum. The consideration of low ropes courses and other experiential education experiences as a part of the overall classroom curriculum could have positive impact not only for individual students, but also for the entire institution. Teachers and Administrators tend to recite phrases such as "I want you all to get along" or "You all should work as a team," yet they fail to provide the space and setting for students to learn how to practice cooperation, respect, and teamwork. The practice of LRC as part of the

curricula allows students the opportunity and time to get to know their peers and learn more about how to work effectively with them. The LRC also provides the learning space for individuals to learn about themselves and how they can effectively work with others and how to engage in school. Students and teachers stand to gain the most from the learning outcomes provided by low ropes activities. The LRC provides an appropriate platform for students to practice the principles that teachers ask the class to model in a flexible setting among their peers.

List of Appendices

Appendix A

Analysis of the Test for Normality

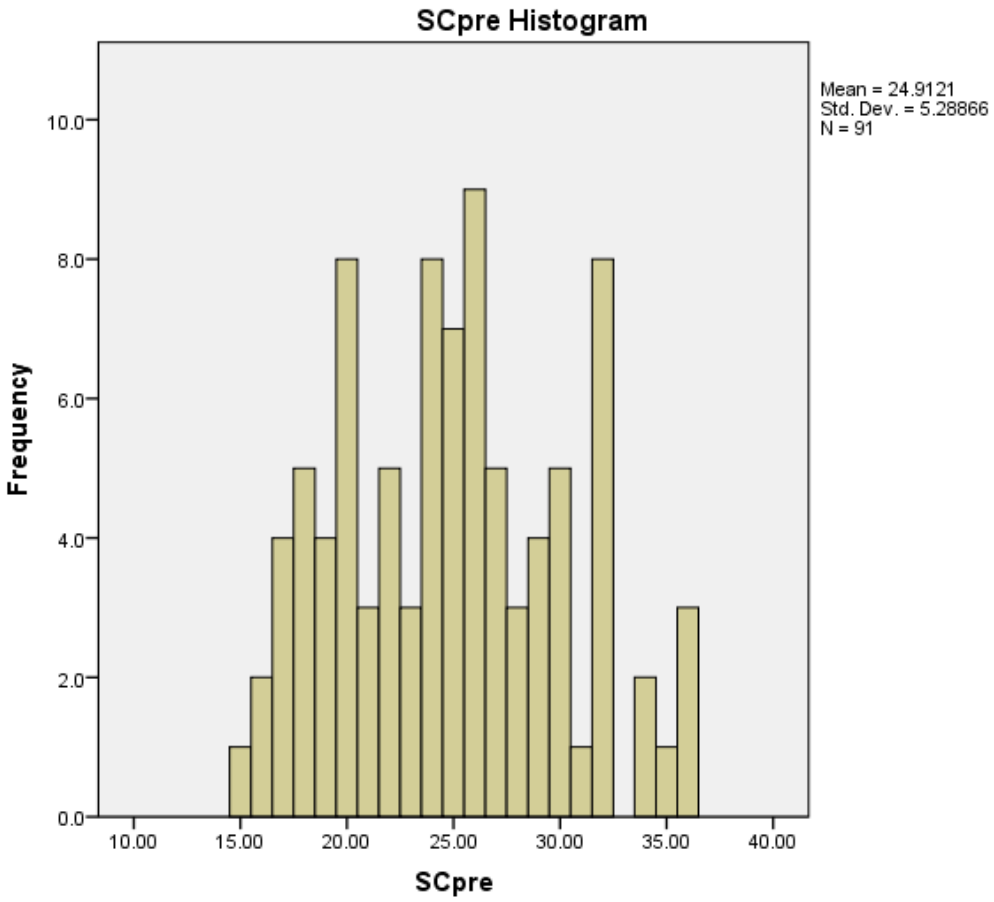


Figure A1. Self-Criticism Pre Survey: Analysis of the Test for Normality

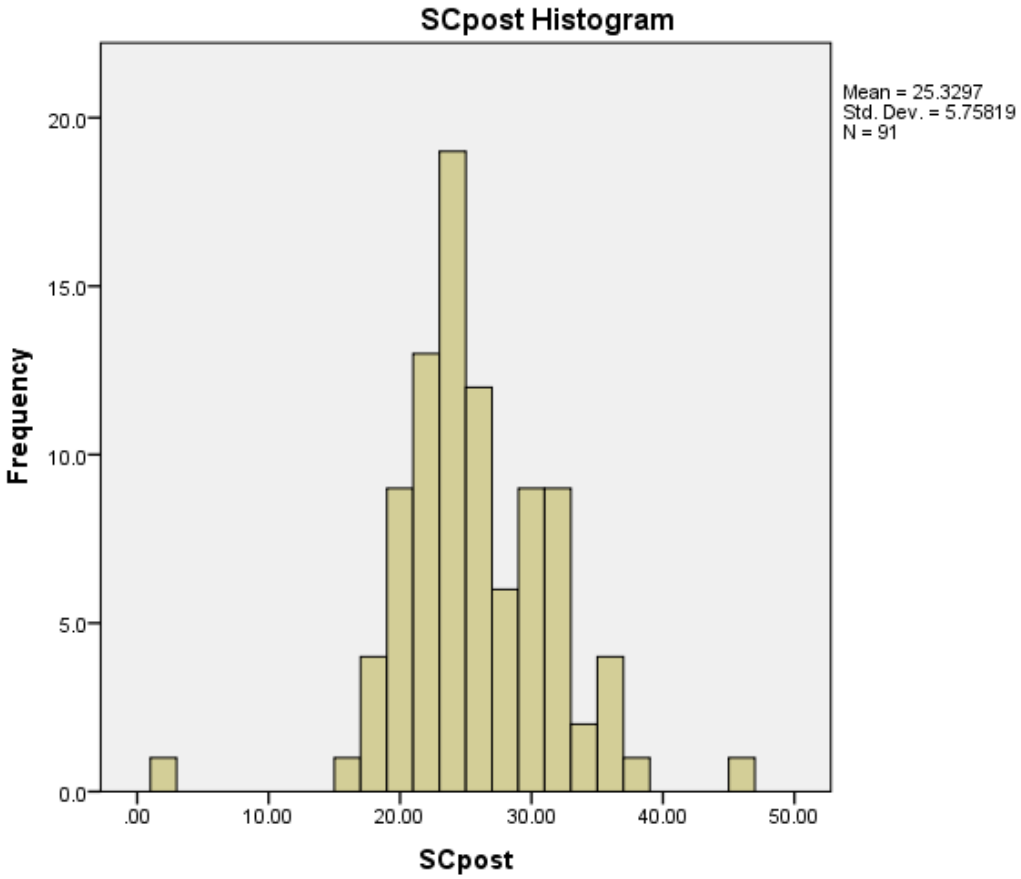


Figure A2. Self-Criticism Post Survey: Analysis of the Test for Normality

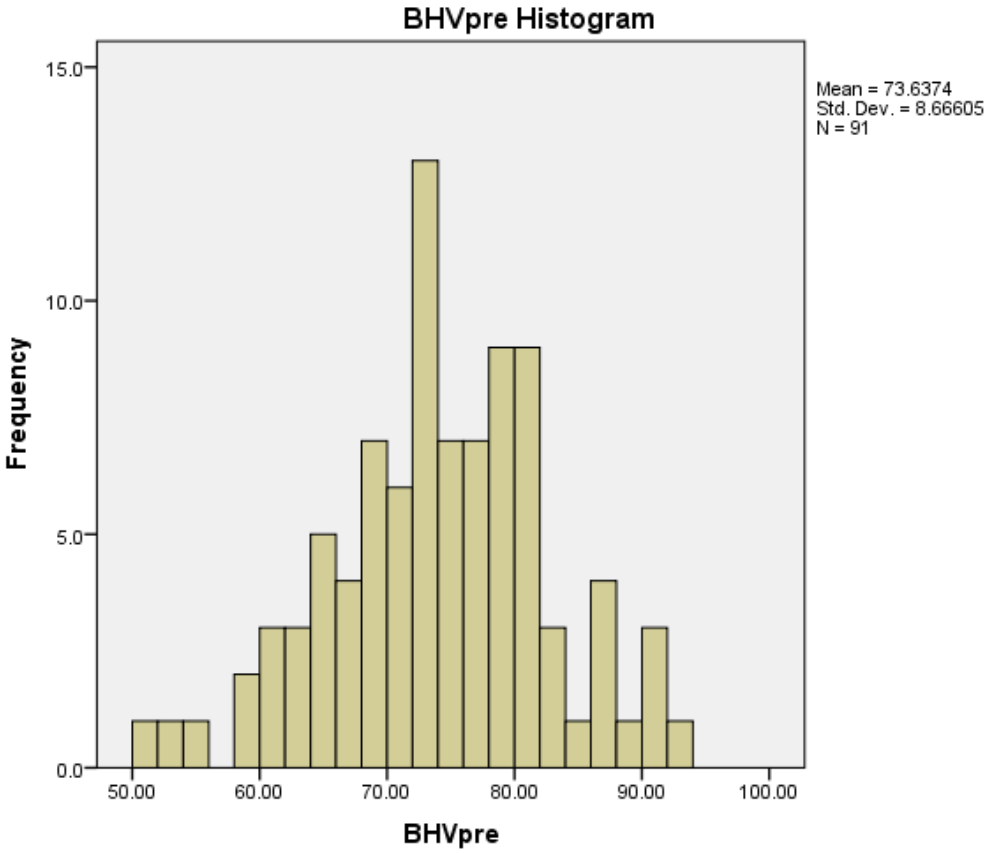


Figure A3. Behavior Pre Survey: Analysis of the Test for Normality

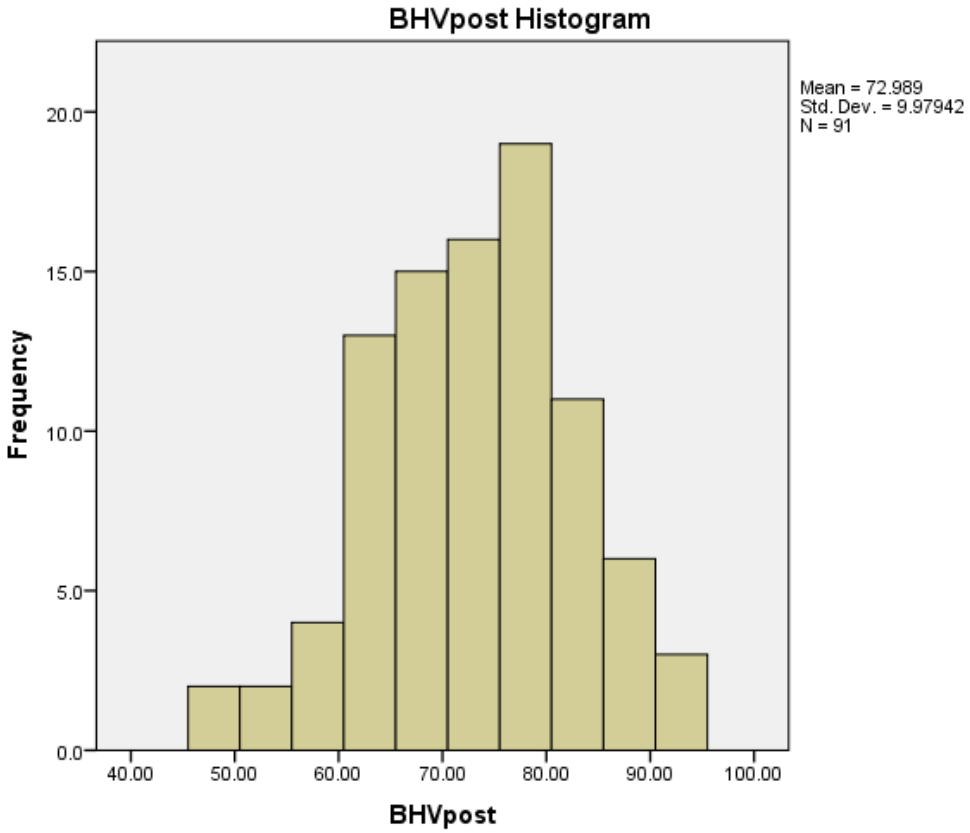


Figure A4. Behavior Post Survey: Analysis of the Test for Normality

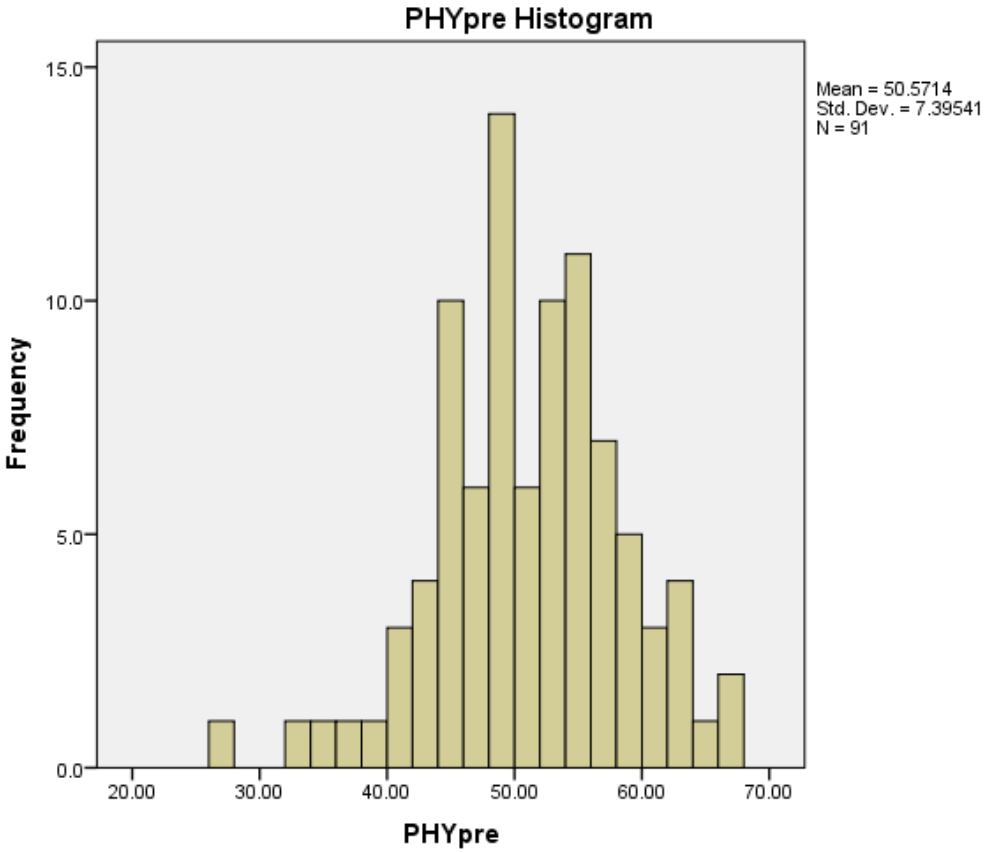


Figure A6. Physical Pre Survey: Analysis of the Test for Normality

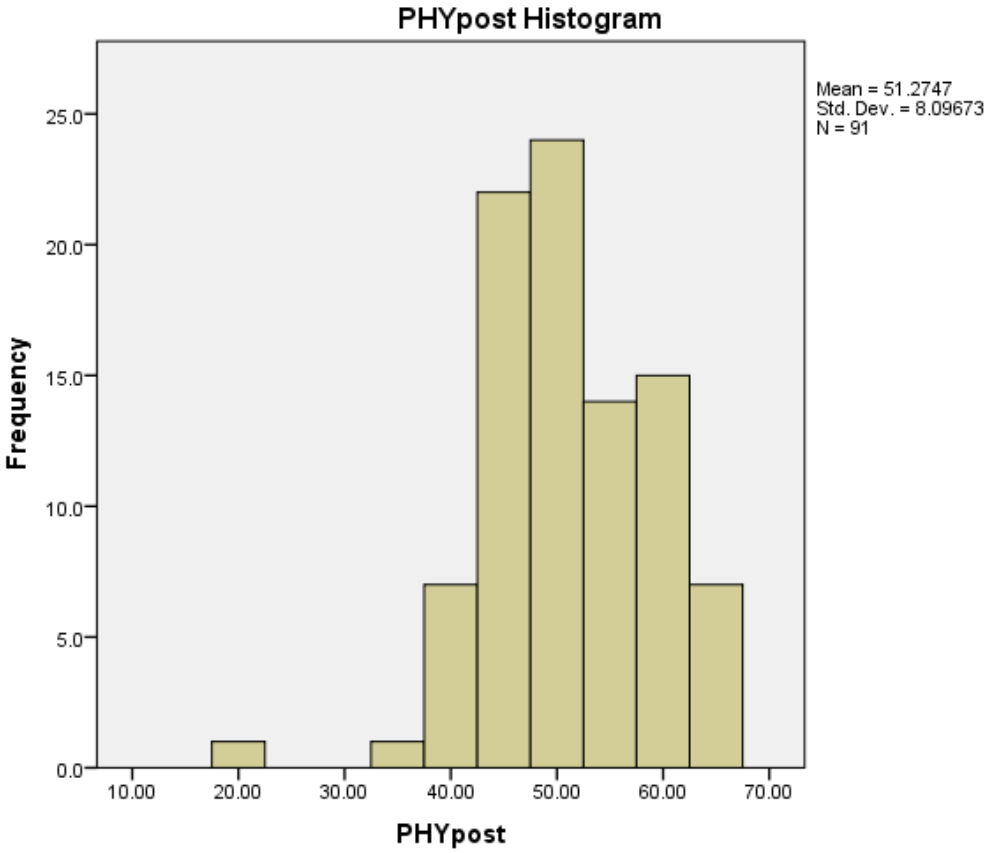


Figure A7. Physical Post Survey: Analysis of the Test for Normality

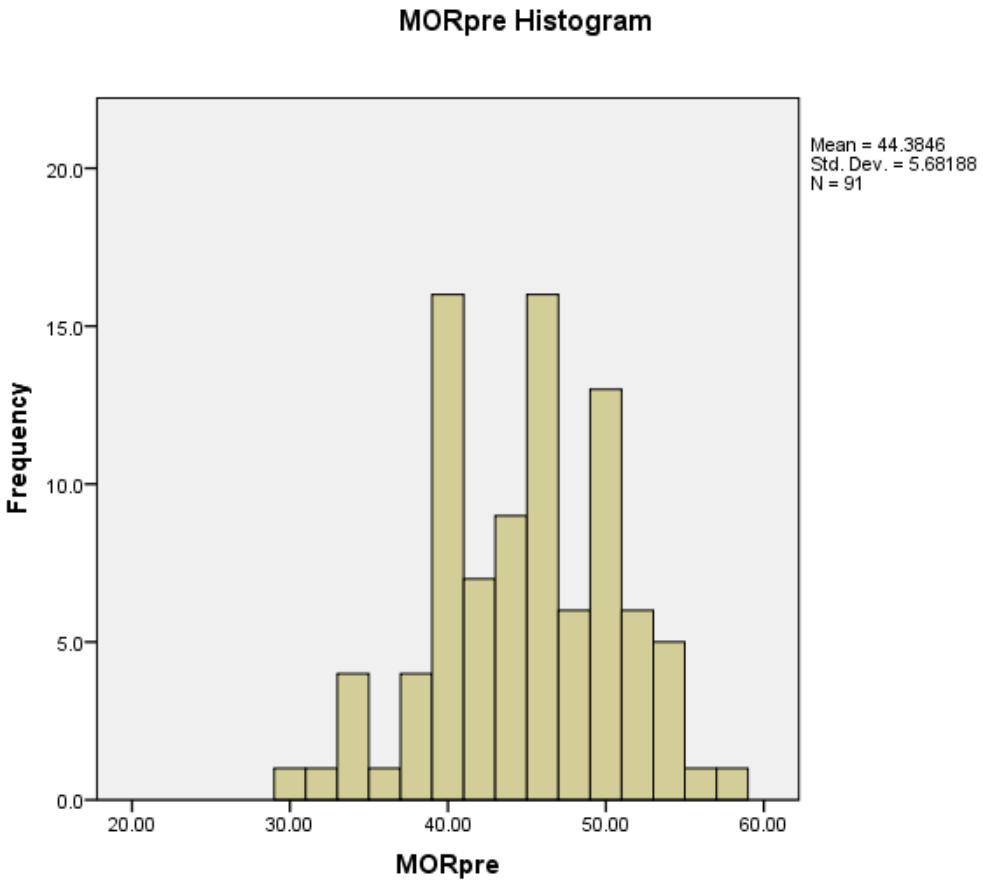


Figure A8. Moral Pre Survey: Analysis of the Test for Normality

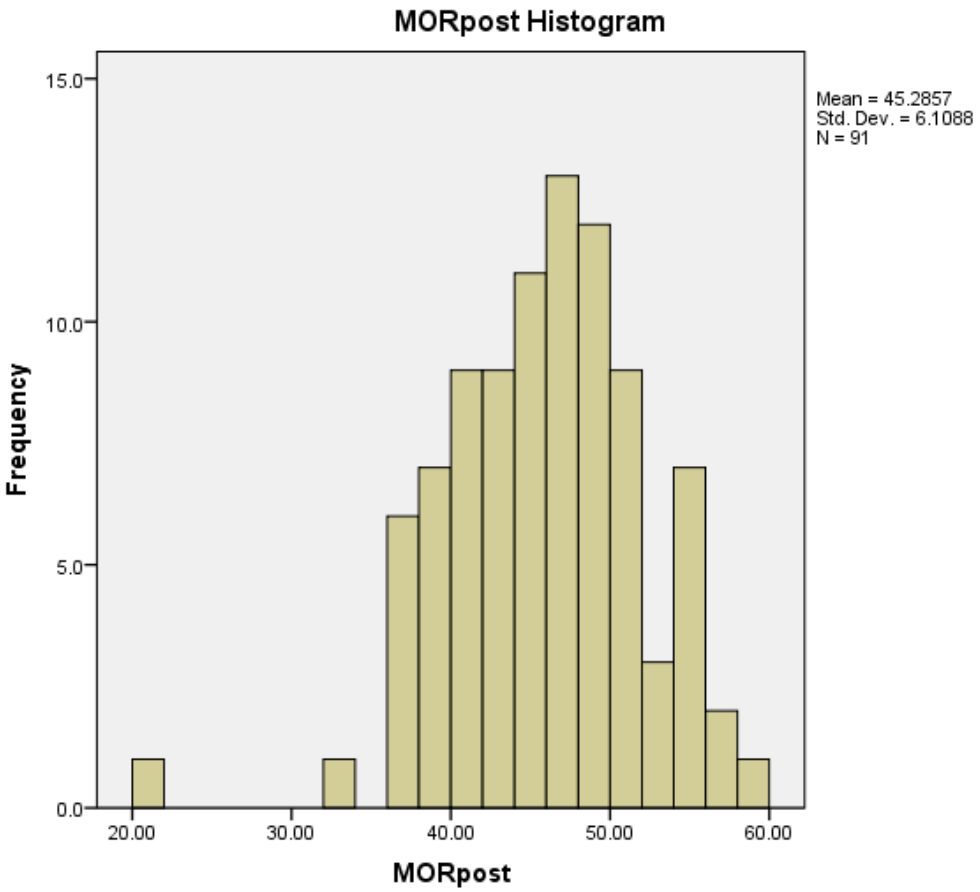


Figure A9. Moral Post Survey: Analysis of the Test for Normality

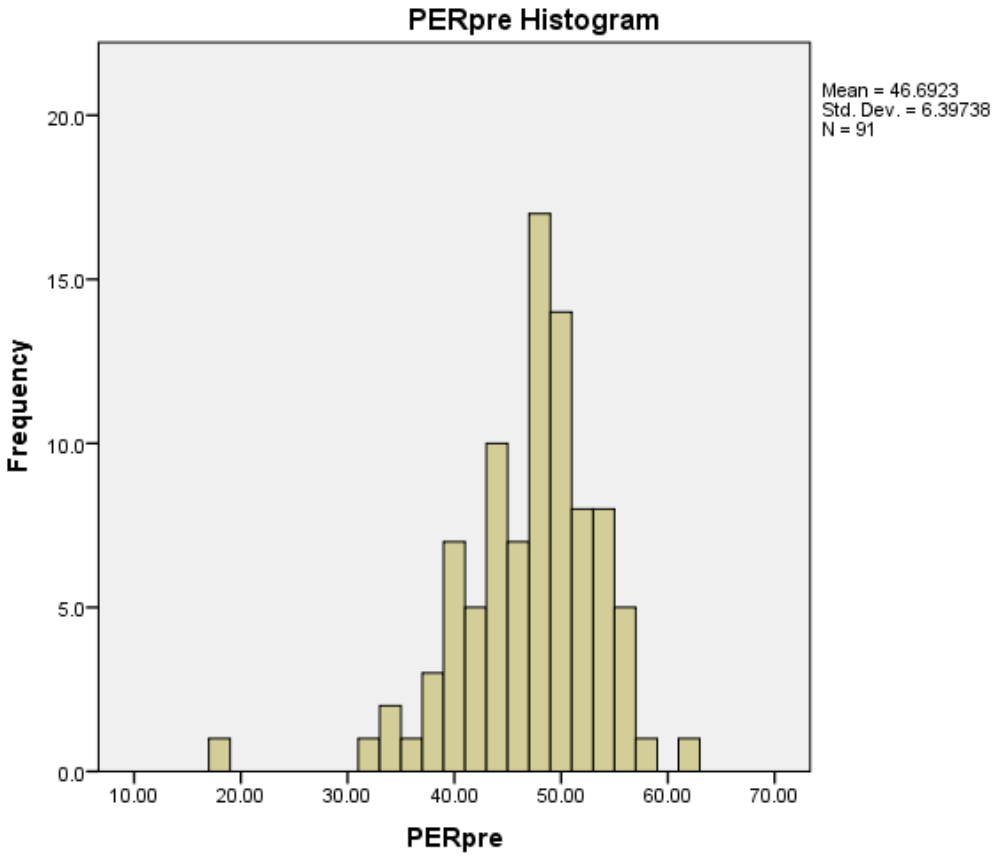


Figure A10. Personal Pre Survey: Analysis of the Test for Normality

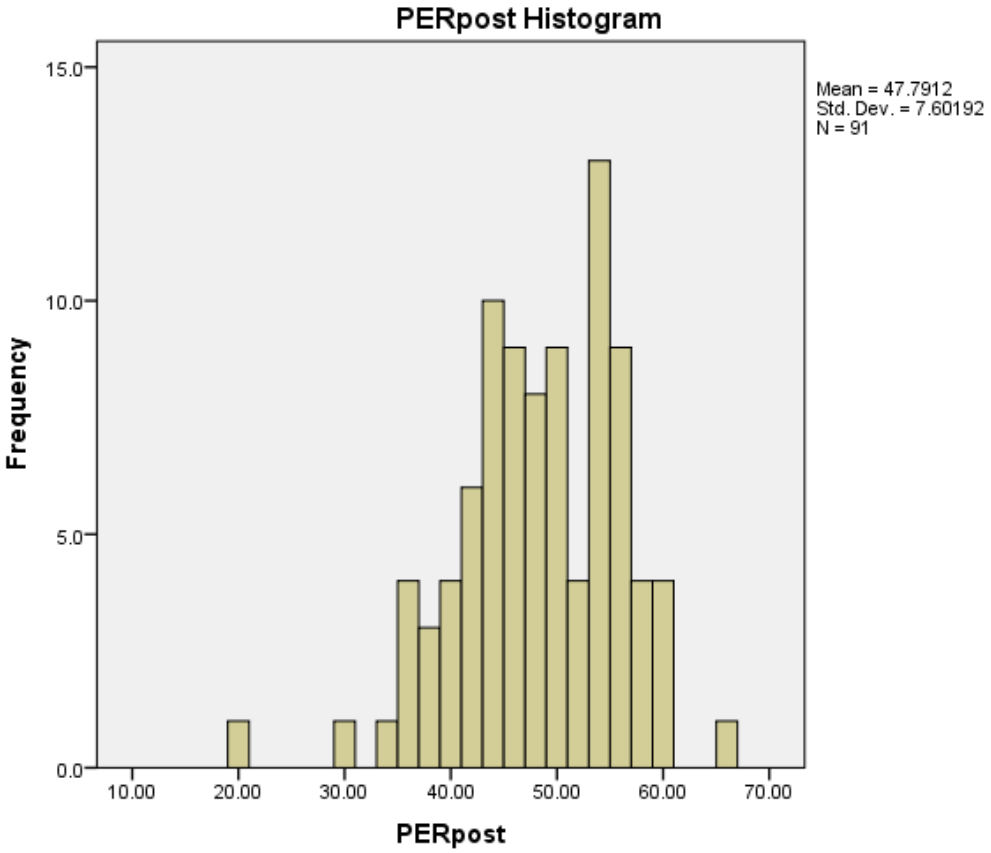


Figure A11. Personal Post Survey: Analysis of the Test for Normality

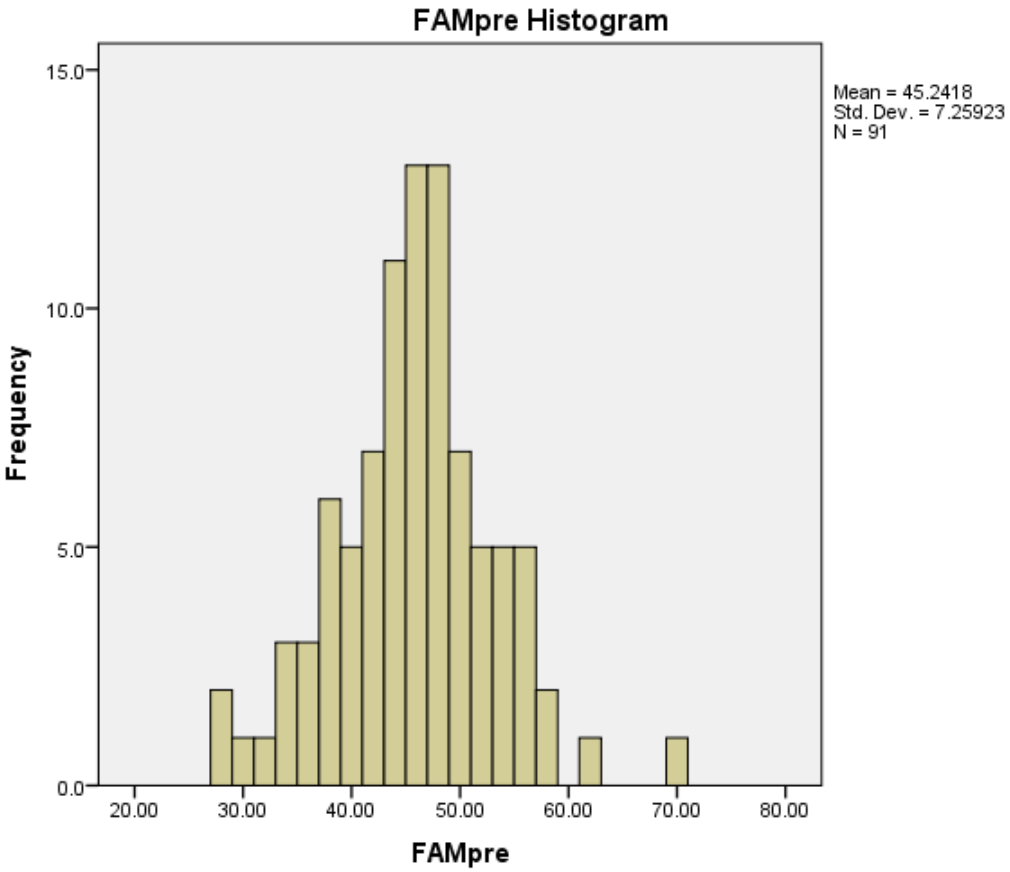


Figure A12.Family Pre Survey: Analysis of the Test for Normality

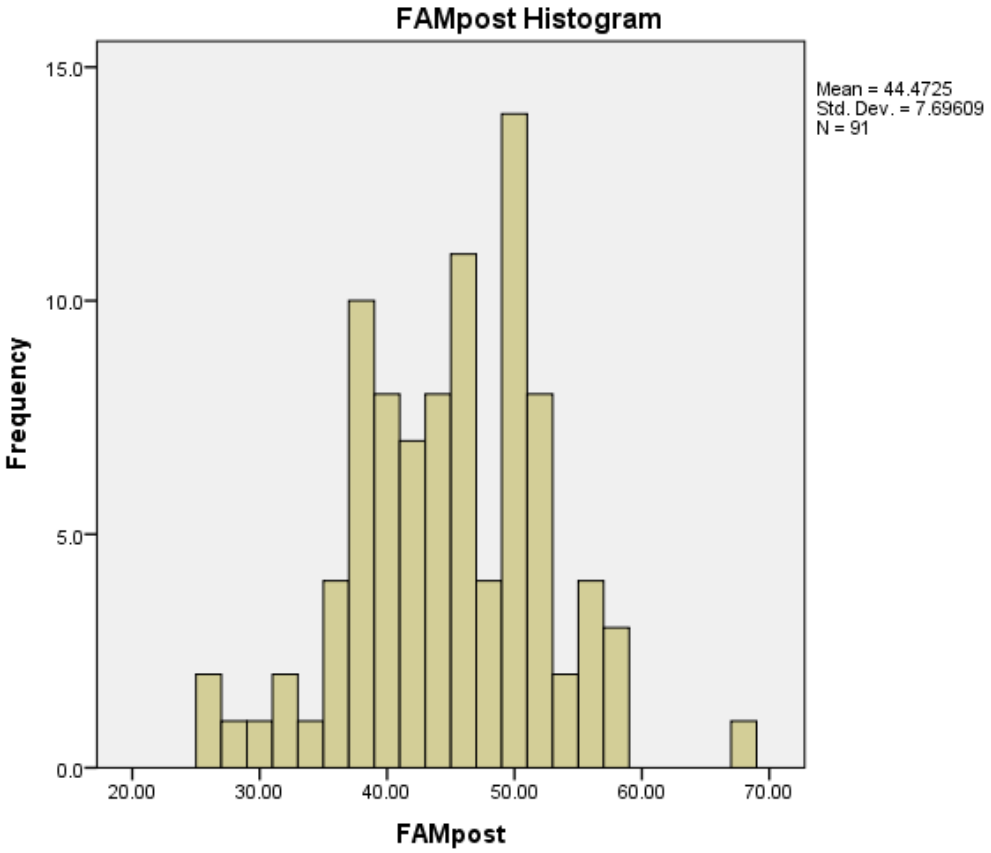


Figure A13. Family Post Survey: Analysis of the Test for Normality

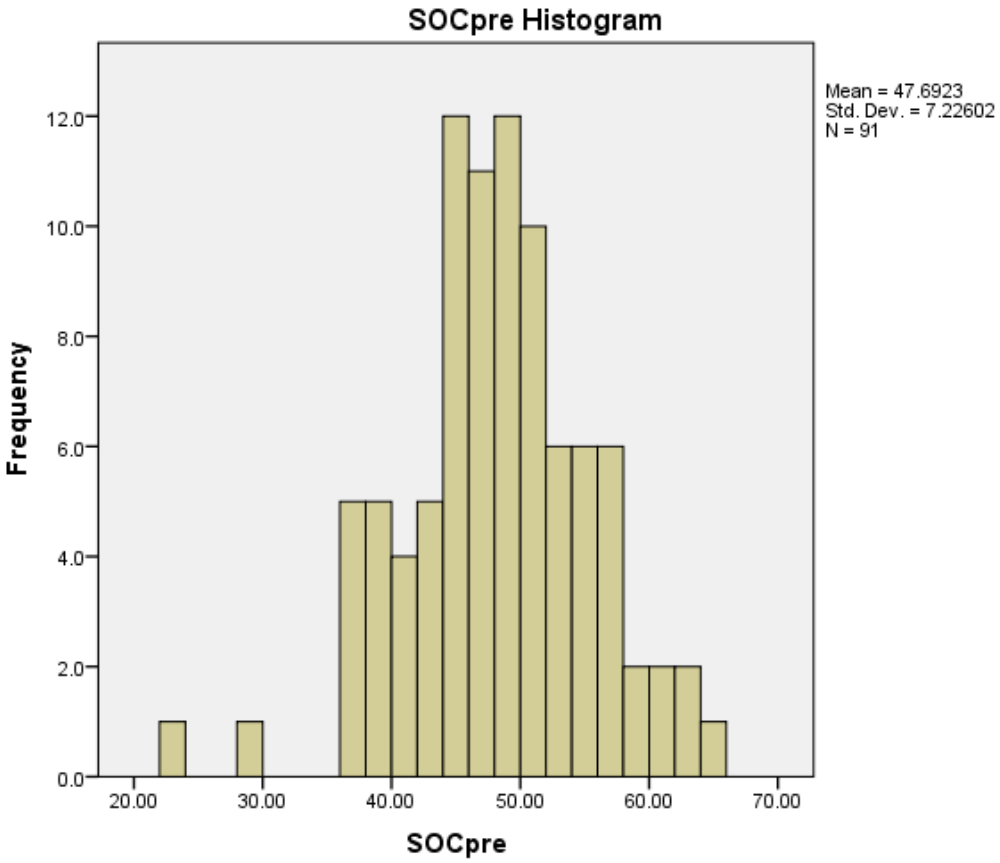


Figure A14. Social Pre Survey: Analysis of the Test for Normality

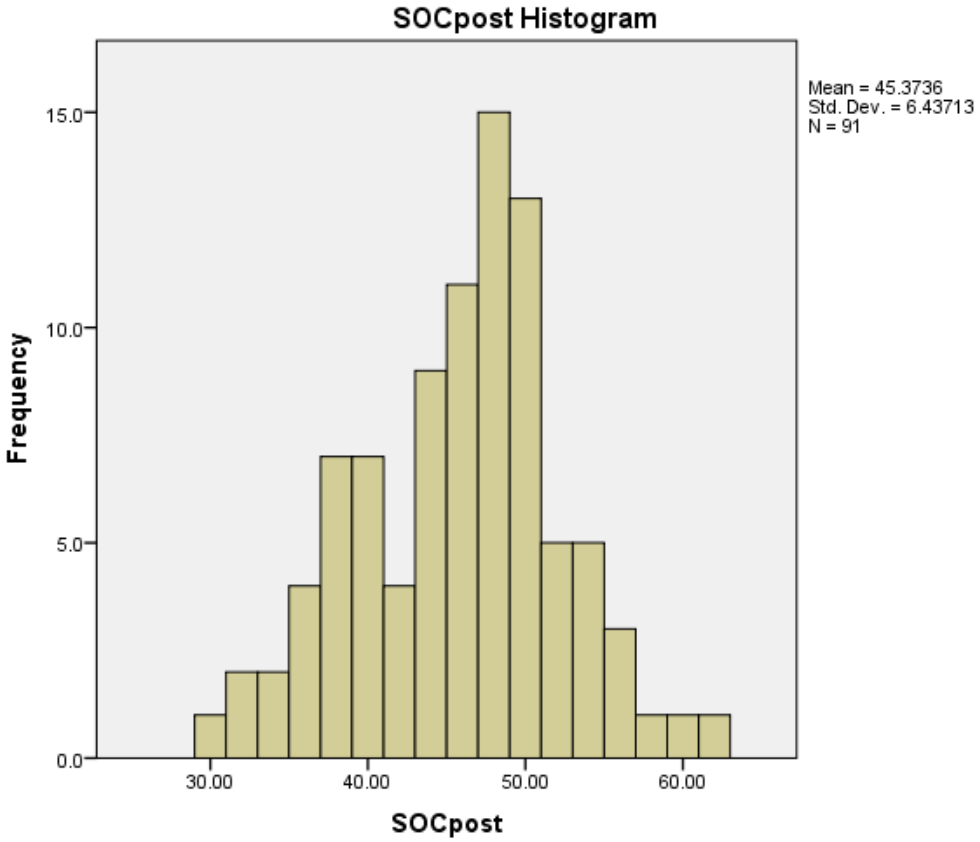


Figure A15. Social Post Survey: Analysis of the Test for Normality

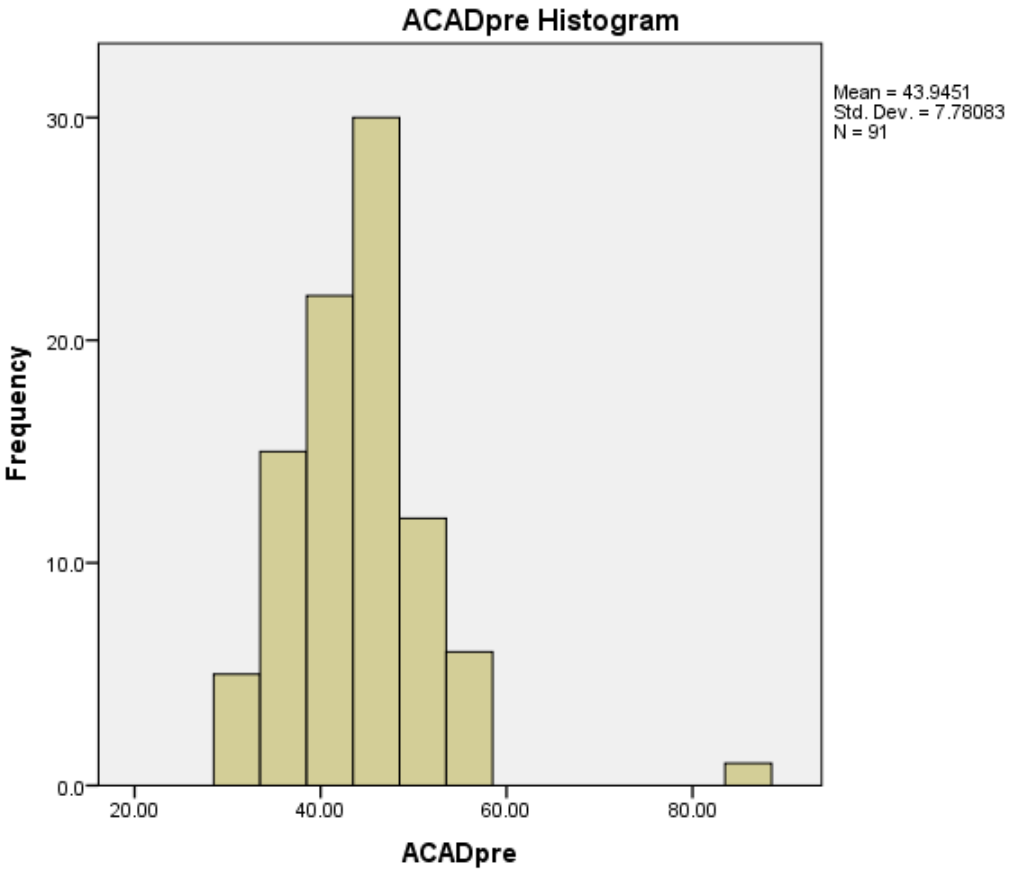


Figure A16. Academic Pre Survey: Analysis of the Test for Normality

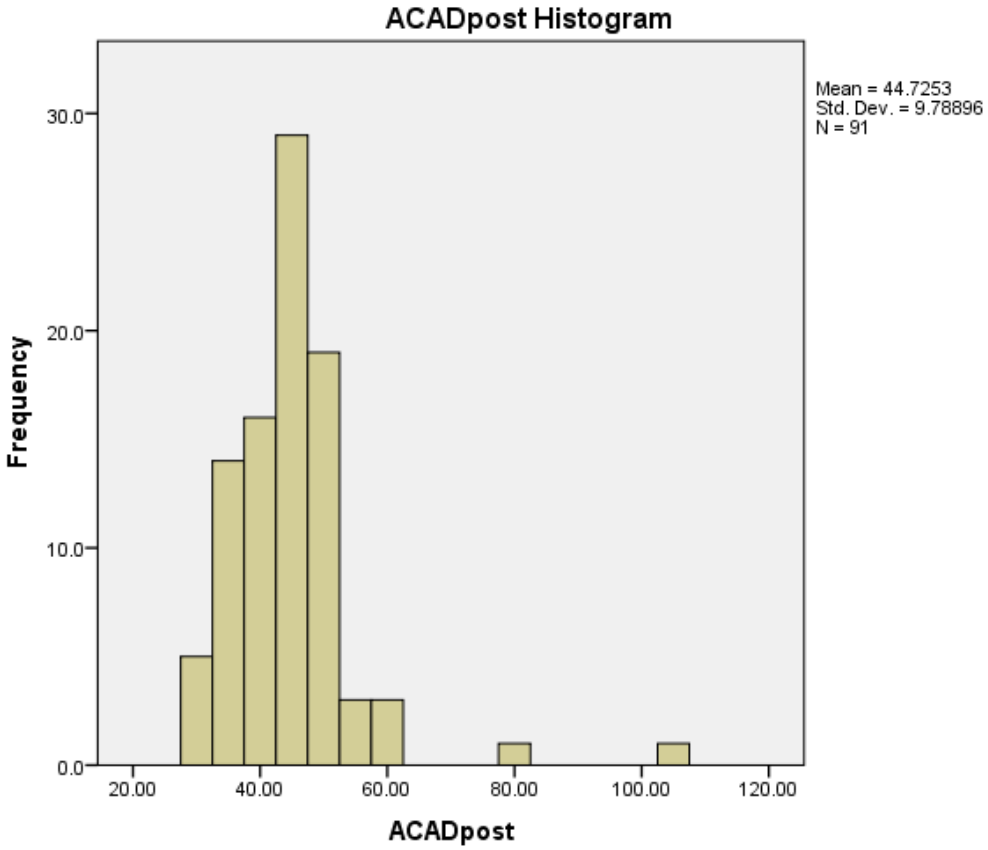


Figure A17. Academic Post Survey: Analysis of the Test for Normality

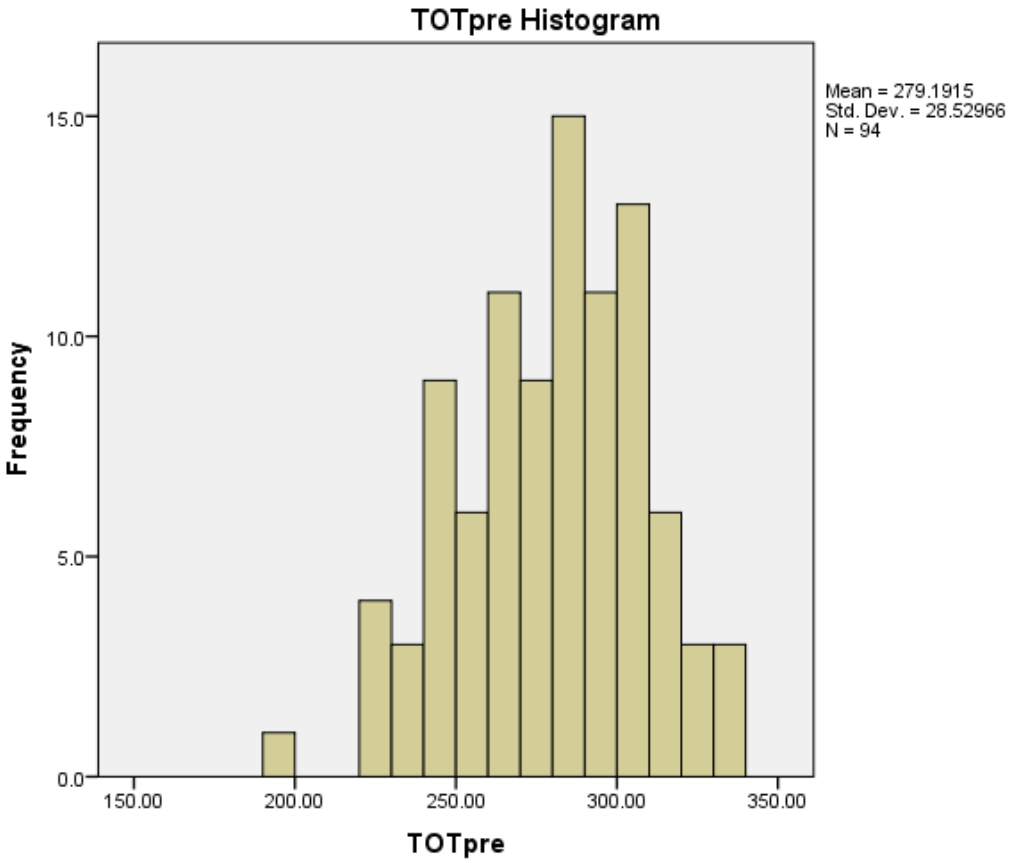


Figure A18. Total Pre Survey: Analysis of the Test for Normality

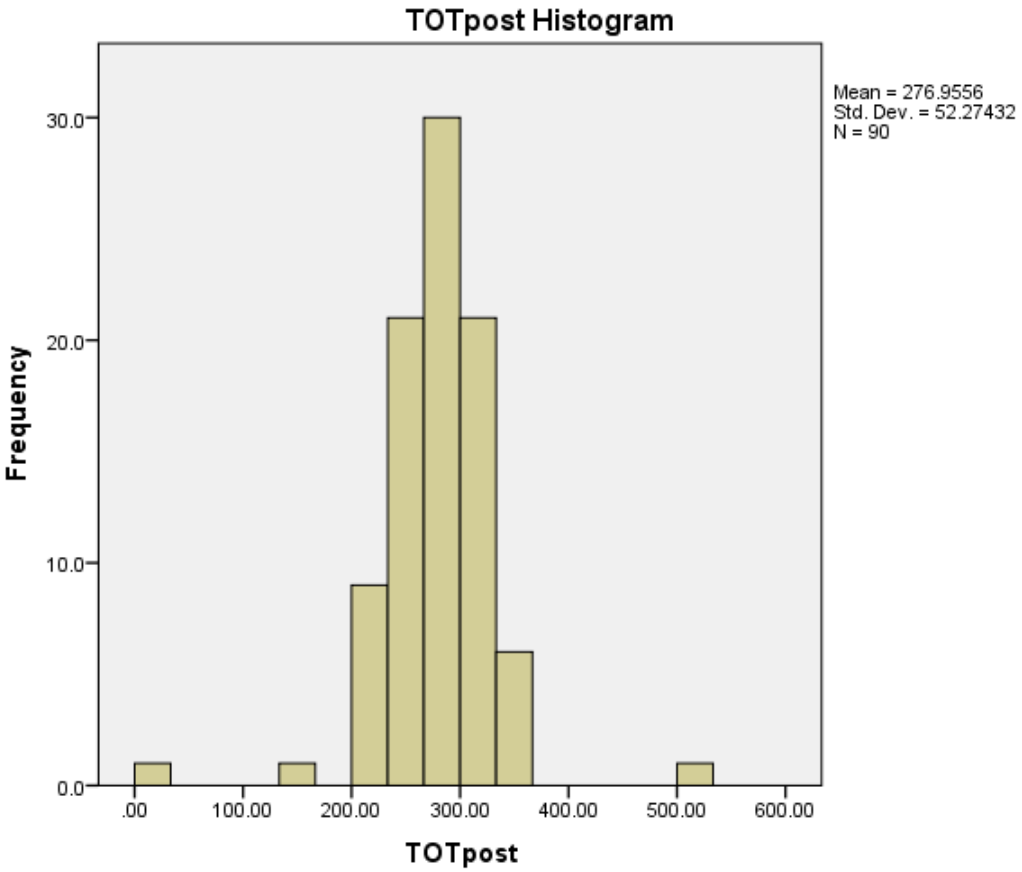


Figure A19. Total Post Survey: Analysis of the Test for Normality

Appendix B

Test for Homogeneity of Variance

Test for Homogeneity of Variance

Subscale	Sig.
Self-Criticism	0.798
Behavior	0.872
Physical	0.670
Moral	0.404
Personal	0.002
Family	0.452
Social	0.095
Academic	0.018
Total	0.044

Appendix C

Tests of Within-Subjects Effects

Tests of Within-Subjects Effects
Dependent Variable: Self-Criticism

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Self-Criticism	.309	1	.309	1.756	.189
Condition	.435	1	.435	2.474	.119
Error (Self Criticism)	15.660	89	.176		

Tests of Within-Subjects Effects
Dependent Variable: Behavior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Behavior	.086	1	.086	1.460	.230
Condition	.066	1	.066	1.120	.293
Error(Behavior)	5.235	89	.059		

Tests of Within-Subjects Effects
Dependent Variable: Physical

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Physical	.038	1	.038	.384	.537
Condition	.131	1	.131	1.314	.255
Error(Physical)	8.851	89	.099		

Tests of Within-Subjects Effects
Dependent Variable: Moral

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Moral	.020	1	.020	.226	.636
Condition	.972	1	.972	11.143	.001
Error(Moral)	7.764	89	.087		

Tests of Within-Subjects Effects
Dependent Variable: Personal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Personal	.208	1	.208	2.357	.128
Condition	.135	1	.135	1.534	.219
Error(Personal)	7.838	89	.088		

Tests of Within-Subjects Effects
Dependent Variable: Family

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Family	1.520	1	.264	2.625	.109
Condition	.569	1	.099	.983	.324
Error(Family)	51.514	89	.100		

Tests of Within-Subjects Effects
Dependent Variable: Social

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Social	1.607	1	1.607	12.576	.001
Condition	.015	1	.015	.120	.729
Error(Social)	11.373	89	.128		

Tests of Within-Subjects Effects
Dependent Variable: Academic/Work

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Academic Work	.017	1	.017	.057	.811
Condition	.694	1	.694	2.406	.124
Error(Academic Work)	25.679	89	.289		

Tests of Within-Subjects Effects
Dependent Variable: Total

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Total	.361	1	.361	1.700	.196
Condition	1.424	1	1.424	6.716	.011
Error(Behavior)	18.452	87	.212		

Appendix D

Tests of Between Subjects Effects

Between Subjects Effect
Dependent Variable: Self-Criticism

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	1594.212	1	1594.212	2033.311	.000
Condition	.084	1	.084	.108	.743
Error	69.780	89	.784		

Between Subjects Effect
Dependent Variable: Behavior

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2134.657	1	2134.657	5710.652	.000
Condition	.736	1	.736	1.968	.164
Error	33.268	89	.374		

Between Subjects Effect
Dependent Variable: Physical

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2099.430	1	2099.430	4118.042	.000
Condition	.861	1	.861	1.689	.197
Error	45.373	89	.510		

Between Subjects Effect
Dependent Variable: Moral

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2207.751	1	2207.751	5889.580	.000
Condition	1.402	1	1.402	3.740	.056
Error	33.362	89	.375		

Between Subjects Effect
Dependent Variable: Personal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2207.751	1	2207.751	5889.580	.000
Condition	1.402	1	1.402	3.740	.056
Error	33.362	89	.375		

Between Subjects Effect
Dependent Variable: Personal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2437.595	1	2437.595	4253.423	.000
Condition	2.720	1	2.720	4.746	.032
Error	51.005	89	.573		

Between Subjects Effect
Dependent Variable: Family

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2215.696	1	2215.696	3291.931	.000
Condition	1.009	1	1.009	1.498	.224
Error	59.903	89	.673		

Between Subjects Effect
Dependent Variable: Social

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2367.021	1	2367.021	4712.830	.000
Condition	2.444	1	2.444	4.866	.030
Error	44.700	89	.502		

Between Subjects Effect
Dependent Variable: Academic/Work

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2150.056	1	2150.056	2762.804	.000
Condition	2.093	1	2.093	2.690	.105
Error	69.261	89	.778		

Between Subjects Effect
Dependent Variable: Total

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	2092.328	1	2092.328	5385.517	.000
Group	3.992	1	3.992	10.275	.002
Error	33.800	87	.389		

Appendix E

Demographic Information

1. Student Status:
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
2. Age:
    a. 14-18yrs
    b. 21-24yrs
    c. 19 -23yrs
    d. 23-28yrs
    e. >28yrs
3. Years Enrolled in College:
    a. 0yr
    b. 1-2yrs
    c. 3yrs
    d. 4yrs
    e. >5yrs
4. Gender:
    a. Male
    b. Female
5. Ethnicity:
    a. Hispanic or Latino
    b. Asian
    c. Native American
    d. Black or African American
    e. White
    f. Other
6. Housing Status:
    a. On campus
    b. Off campus w/ Parents
    c. Off campus w/out parents
7. Are you currently involved in extra-curricular activities?
    a. Social Organization
    b. Athletics
    c. Academic Organizations
    d. Other
    e. Not involved
8. Do you either of your parents have at least a bachelor's degree?
    a. Yes
    b. No

Appendix F
Assumption of Risk Consent

UNIVERSITY OF NEW MEXICO
Low Ropes course ASSUMPTION OF RISK

In return for the acceptance of my participation in the activities of the University of New Mexico LOW ROPES, herein referred to as "UNM-low ropes course", I the participant named below agree as follows:

1. The participant is instructed that prior to participating in any UNM-low ropes course activity and regularly thereafter, that he or she should inspect the facilities and equipment to be used, and if he or she believes anything is
unsafe, the participant should immediately advise the instructor of such condition and refuse to participate. Furthermore, the participant should refrain from involvement in any activity which he or she deems inappropriate for him or herself.
2. Participant shall carefully review and follow all UNM-low ropes course safety guidelines. Participant understands that his/her personal well-being can best be promoted by his/her attention to the instructions of the UNM low ropes course staff, and agrees to maintain an observant and cooperative attitude throughout the course(s).
3. Fully understands and acknowledges that: (a) there are risks and dangers inherent in participation in climbing/confidence course activities and events, including but not limited to those of bodily injury, partial and/or total disability, paralysis and death; (b) the social and economic losses and/or damages,
which could result from those risks and dangers could be severe.
4. I hereby acknowledge the inherent risks and hazards of this activity. I acknowledge that any claims for damage against the University of New Mexico or its officers or employees for death, personal injury, or property damage which may occur as a result of my participation in the above mentioned activity would be governed by the New Mexico Tort Claims Act, which imposes limitations on the recovery of damages
from state institutions and their public employees.
5. Participant understands that the UNM-low ropes course, its instructors and facilitators, and the University of New Mexico, **STRONGLY** recommend that the participant have some type of medical and or health insurance to cover any possible accidents that might occur while participating in these events.

THE UNDERSIGNED HAS READ THE ABOVE ASSUMPTION OF RISK AND RELEASE AND WAIVER OF LIABILITY AND UNDERSTANDS THAT HE/SHE HAS GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT AND HAS SIGNED IT VOLUNTARILY. PRINTED NAME OF
PARTICIPANT_____
ADDRESS OF PARTICIPANT _____
PHONE NUMBER OF PARTICIPANT _____
CONTACT PERSON IN CASE OF ACCIDENT

_____
SIGNATURE OF PARTICIPANT
_____DATE_____
SIGNATURE OF PARENT OR GUARDIAN IF PARTICIPANT IS UNDER 18
_____DATE_____

Appendix G
Research Plan/Schedule

Research Schedule/Lesson Plan: Low Ropes group (Low-Ropes Group).

Session One 4hrs:

A. Introduction.
B. Explanation of research.
C. Consent forms.
D. Administration of Tennessee Self-Concept Scale:2 in classroom.
E. Description of Challenge Course activities outside.
F. Three hour Administration of Challenge Course activities listed below:
    a. Challenge Course Safety briefing.
    b. Challenge by choice briefing.
    c. Turbine activity.
    d. Commonalities.
    e. Name Game.
    f. Group Juggle.
    g. Warp-Speed activity.
    h. Human Knot.
    i. Stepping Stones.
    j. The Wind Is Blowing.
    k. Link Tag.
    l. Speed Dial.
G. Processing
    a. How can this activity be applied in your student life?
    b. What worked in this activity?
    c. What challenges emerged in this activity?
    d. What types of communication worked?

Session Two 4hrs:

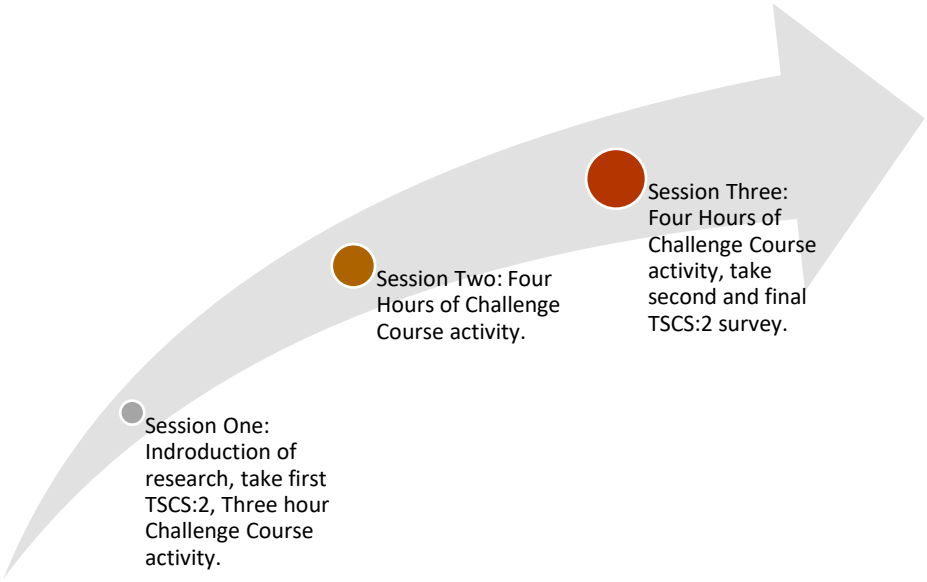
A. Challenge Course safety briefing.
B. Four hour administration of Challenge Course activities listed below:
    a. Log-Jam.
    b. Wild Woozie.
    c. Trollies.
    d. Rope Spelling.
    e. Duck Brigade.
    f. Whale Watch.
    g. Triangle Traverse.
    h. Prouty's Landing.
C. Processing

    a. How can this activity be applied in your student life?

b. What worked in this activity?
c. What challenges emerged in this activity?
d. What types of communication worked?

Session Three 4hrs:

A. Challenge Course safety briefing.
B. Four hour administration of Challenge Course activities listed below:
    a. Team Wall.
    b. Nitro-Crossing.
    c. Tent Poles.
    d. Marble Tubes.
    e. Duck Brigade.
    f. Partner Trust Fall.
    g. Hoola Hoop Circle.
    h. Group Paper, Rock, Scissor Tag.
C. Processing
    a. How can this activity be applied in your student life?
    b. What worked in this activity?
    c. What challenges emerged in this activity?
    d. What types of communication worked?
    e. Administration of second and final TSCS:2 survey in classrooms.



Research Schedule: No-Low Ropes group (No Low-Ropes).

Session One:

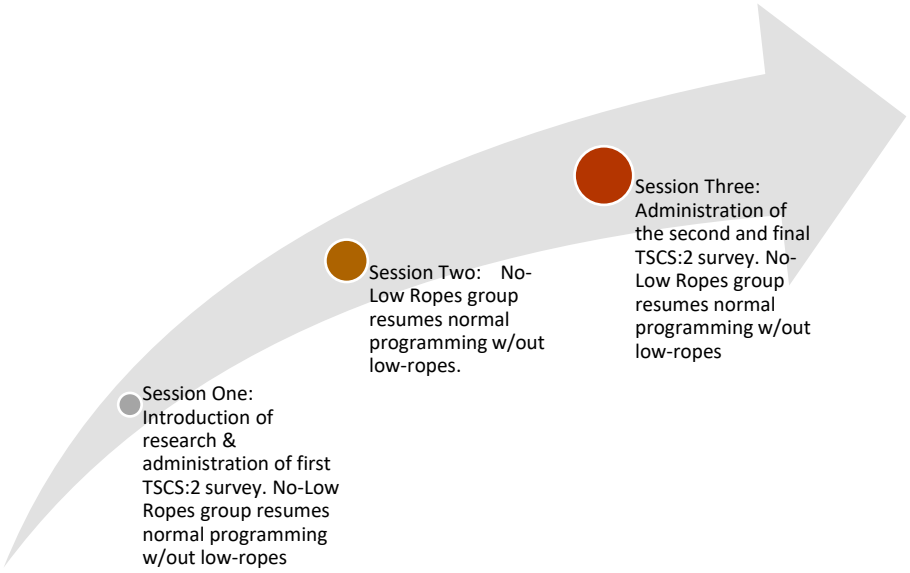
A. Introduction.
B. Explanation of research.
C. Consent forms.
D. Administration of Tennessee Self-Concept Scale:2 in classroom.
E. No-Low Ropes group resumes normal programming without low ropes for three hours.

Session Two.

A. No-Low Ropes group resumes normal programming without low ropes for four hours.

Session Three.

A. Administration of second and final TSCS:2 survey



Appendix H

IRB Consent Form

THE UNIVERSITY of NEW MEXICO

The Relationship Between a Low Ropes Course Experience
And the Self-Concept of First-Generation College Students
Consent to Participate in Research
7/14/16

Purpose of the study: You are being asked to participate in a research study that is being done Dr. Gloria Napper-Owen, the Principal Investigator, and researcher Christopher Luna from the Upward Bound. This project is to study the relationship between a Low Ropes Course experience and the self-concept of first-generation college students. We are interested to see how the experience might be integrated into regular academic curriculum. You are being asked to take part in this study because you are a first-generation college student.

This form will explain what to expect when joining the research, as well as the possible risks and benefits of participation. If you have any questions, please ask one of the study researchers.

What you will do in the study: You will complete an 82 question multiple-choice survey on the first day of your regularly scheduled program meeting, you will be in your normal UNM meeting space in Dane Smith Hall classrooms.
-- Participants can skip any question that makes them uncomfortable and they can stop the survey at any time.

Participation in this study will take a total of 15-30 minutes over a two-month period of time. There will be two participant groups. Group 1 will take the survey once on the first regularly scheduled program meeting day and once after the conclusion of the Low Ropes Course Experience on a regularly scheduled program meeting day. Group 2 will take the survey on the first meeting day as well, they will take the survey after their Low Ropes Course Experience on a regularly scheduled meeting day, and once after their low ropes course experience on a regularly scheduled program meeting day.

Risks: The potential risks are minimal and comparable to a well-developed survey. Program feedback surveys are routine for students and they complete them often. Possibility of emotional distress may occur if one of the TSCS:2 survey questions conjures up strong emotion for an individual. If students choose not to participate in the survey portion, their decision is confidential and will be unknown to other participants.

Benefits: The potential benefit is that students become more reflective and aware regarding concepts of self. The anticipated societal benefit of the research is learning alternative teaching strategies to reach a wider variety of learning styles.

Confidentiality of your information: Confidentiality will be maintained by numbering/coding survey folders by number and recording the acronym of the program, either UB for Upward Bound or CP for College Prep followed by the participant initials, first name letter followed by last name letter. When the survey is collected it will be stored in a locked UNM Main Campus office within a locking file cabinet in an office belonging to the researcher. The linking document will be in the same office locked in a separate file cabinet. The data from the survey/linking document will be analyzed in the same office. Copies of the survey and linking document will be maintained by the researcher until the research defense upon which they will be destroyed. The researcher and research committee are the only persons to have access to the data. Electronic records will be stored on a password protected computer. Identifiers will be stored separately from consent forms as well as study data. For identifiable data, a coding process will be used to store data with identifiers on a linking document which will be stored and locked separately from all other study records. We will take measures to protect the security

of all your personal information, but we cannot guarantee confidentiality of all study data. The University of New Mexico Institutional Review Board (IRB) that oversees human subject research and/or other entities (such as a Sponsor) may be permitted to access your records. Your name will not be used in any published reports about this study. All linking documents will be destroyed from the records when the research defense process has concluded.

Payment: N/A

Right to withdraw from the study: Your participation in this study is completely voluntary. You have the right to choose not to participate or to withdraw your participation at any point in this study without penalty. If a student withdraws during the data collection period, they will not be required to take additional surveys, previously collected data will remain as part of the study. Conditions under which the investigators might withdraw a participant from the study would be due to behavioral safety, no additional surveys will be offered to such students. Data obtained from withdrawn participants will be utilized.

If you have any questions, concerns, or complaints about the research study, please contact:

Christopher Luna, Health Exercise & Sports Sciences, 1 University of New Mexico, Albuquerque, NM 87131. (505) 277-0096. cluna@unm.edu

If you would like to speak with someone other than the research team or have questions regarding your rights as a research participant, please contact the IRB. The IRB is a group of people from UNM and the community who provide independent oversight of safety and ethical issues related to research involving people:

UNM Office of the IRB, (505) 277-2644, irbmaincampus@unm.edu. Website: http://irb.unm.edu/

By completing the survey you fully understand the study procedures and agree to participate in the study.

Appendix I

IRB Approved Assent Form

The Relationship Between a Low Ropes Course Experience and the Self-Concept of First-Generation College Students.
Assent to Participate in Research: 6/14/16

You are being asked to join a research study by Chris Luna, the Principal Investigator, and researchers Justin Lopez, and Tatiana Burks from the Upward Bound. This project is to study the relationship between a Low Ropes Course experience and the self-concept of first-generation college students. We are interested to see how the experience might be integrated into regular academic curriculum.

If you join the project, you will be asked to complete a brief survey prior to and after your regularly scheduled low ropes course experience. This will take place on UNM's main campus low ropes course. This will happen during regularly scheduled Saturday workshops during the Fall 2016 school semester.

If you join, there may be some risks, bad things that happen, such standing outside. There may also be some benefits, or good things that happen, such as gaining confidence, learning from others, having fun, and problem solving.

If you do not want to join the project, you can join a regularly scheduled classroom workshop session.

Any information about you will be kept secure because not identifying information will be collected for the survey. All surveys and consent forms will be stored within locked locations.

If you join the study, you will get the benefits of the low ropes course experience.

We would like you to talk with your parents about this before you decide to join or not join this study. We will also ask your parents if they want you to be in this study.

If you have any questions at any time, please call or email Chris Luna or any of his/her assistants at 505-277-0096 or cluna@unm.edu. If you would like to talk to someone else, you can call the Office of the IRB at (505) 277-2644 or email at IRBMainCampus@unm.edu.

You do not have to be in this study. If you do choose to be in the study, you can change your mind at any time. The researcher won't care if you change your mind or if you don't want to join this study.

Signing this form means you have read this form and all of your questions have been answered. You and your parents will be given a copy of this form.

I agree to join this study.

_____	_____	_____
Name of Child Participant	Signature of Child Participant	Date

Researcher Signature (to be completed at time of informed consent)

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understands the information described in this consent form and freely consents to participate.

_____	_____	_____
Name of Research Team Member	Signature of Research Team Member	Date

Appendix J

IRB Project Information Form

IRB Project Information

The purpose of this form is to provide information about a project for IRB review.

Instructions: Complete the required sections.

Sections marked with an asterisk (*) are required.
Sections marked with a double asterisk (**) are required if applicable.

UNM | Office of the Institutional Review Board
1805 Sigma Chi NE
Tel: (505) 277-2644
Fax: (505) 277-2697
Email: IRBMainCampus@unm.edu

Project Identification	
* *Provide the title of the project:*	**Group Cohesion Effects of a One Day Challenge Course Experience**

Principal Investigator of Record					
* The Principal Investigator of record is: *(select one)*	☐ Principal Investigator ☒ Responsible Faculty				
* Name:	**Glen Hushman**	* Title:	**Dr.**	* Email:	**ghusman@unm.edu**
* Department:	**Health Exercise and Sports Sciences**	* University Status:	**Faculty**	* Phone:	**505-277-0111**

Additional Contact Person					
** The contact person for this project is: *(select one)*	☒ Project Coordinator ☒ Student Investigator				
** Name:	**Christopher Luna**	** Title:	**Mr.**	** Email:	**cluna@unm.edu**
** Department:	**Health Exercise and Sports Sciences**	** University Status:	**Student/Staff**	** Phone:	**505-440-4987**

Certification	
* As Principal Investigator, I certify the following:	
☒	I have completed the required human subjects protections training.
☒	I will personally conduct or supervise this research in accordance with state law, policies and procedures, and regulations presented in the Code of Federal Regulations (CFR) Title 21 Parts 50, 56, 312 and 812 / Title Part 46 and Title 45 Parts 160-164 (the HIPAA Privacy Rule).
☒	I agree to conduct the research in accordance with the three basic principles of the Belmont Report (Respect for Persons, Beneficence, and Justice).
☒	I agree to seek and obtain prior written approval from the University of New Mexico Institutional Review Board (UNM IRB) for any amendments to this research including changes in procedures, project risks, project team, etc.
☒	I will maintain records of this research according to federal and state regulations and guidelines, including keeping a copy of this form for the investigator's records. If this form is approved, I agree to maintain copies of all IRB correspondence and documents for at least 3 years after completion of the project, or longer if required by project's funding source.
☒	I agree to promptly report any adverse events or unanticipated problems involving risks to participants or others in the course of this project in accordance with the UNM Office of the IRB (OIRB) policy.
☒	I understand that this research, once approved, is subject to continuing review and approval by the UNM IRB, unless, written documentation is provided to allow this research to be exempt. I agree to maintain active project approval; I will not conduct any research activities if there is a lapse in approval. In order to maintain active approval, I agree to submit to the OIRB complete requests for continuation at least thirty (30) days prior to the project expiration date.
I certify that the statements herein are true, complete, and accurate to the best of my knowledge, and accept the obligation to comply with all applicable federal regulation and state laws, institutional policies and procedures, and the requirements and determinations of the UNM IRB with respect to this research.	

Principal Investigator / Responsible Faculty		Student Investigator	
* Signature	Date	** Signature	Date

Summary of the Protocol	
** Provide a brief, lay, protocol summary that includes study goals, background, and methods used for this research:* *Limit: 250 words*	

Project Logistics			
** Is the project funded?*	☐ No ☒ Yes. Provide the following information for the funding source:		
** Name of Funding Source:			
** Funding Source / Grant ID Number:			
IMPORTANT! If applicable, provide a copy of the complete grant application			
** Are there external sites at which the investigator will conduct or oversee the project?*	☐ No ☐ Yes. Provide the following information for each site:		
	Site 1	Site 2	Site 3
** Site Name:			
** Site Location:			
** Contact Name:			
** Contact E-mail:			
** Site's IRB will review this project:	☐	☐	☐
** Site will rely on the UNM IRB:	☐	☐	☐
IMPORTANT! If applicable, provide a copy of the site's IRB Approval and/or IRB Authorization Agreement			
** Identify the project design / model:* *(check all that apply)*	☐ Biomedical	☐ Community-Based Participatory Research	
	☒ Social / Behavioral	☐ International Research	
	☐ Chart / Record Review	☐ Other. Describe:	
** This project is:* *(select one)*	☐ Faculty Research	☐ Master's Thesis	
	☐ Staff Research	☐ Undergraduate Project	
	☒ Doctoral Dissertation	☐ Other. Describe:	

Project Data Information			
** The project data that will be collected / used include:* *(check all that apply)* *Note: This applies for screening / recruitment purposes and data collection / analysis purposes.*	☐ Personal Identification Information (PII)		
	☐ Personal Health Information (PHI)		
	☐ Education Information (e.g. grades, student records, etc.)		
	☒ None of the above will be collected / used		
** Data collection / analysis methods:* *(check all that apply)*	☐ Records Reviews	☐ Web-based / Online Data	☐ Secondary Data Sets
	☐ Audio / Video Recordings	☐ Interviews / Focus Groups	☒ Surveys / Questionnaires
	☐ Drugs / Supplements	☐ Medical Devices	☐ Laboratory Devices
	☐ Other. Describe:		

** Will this project use a Data & Safety Monitoring Board?*	☒ No ☐ Yes
** Provide information about data linkage & the process for de-identifying data:* *a. * Describe how data will be linked to individual participants.* *b. ** Describe the process that will be used to de-identify data.* *c. ** Describe the process that will be used to destroy the link to identifiers.* *d. ** If data will remain identifiable, justify retention of identifiable data and describe procedures that will be put in place to protect the confidentiality of any identifiable data (including storage and security for electronic and hard copies).* *Limit: 500 words*	

Participant Enrollment Information				
** What is the total maximum expected enrollment?* *(e.g. participants, charts, records, etc...)*	**300 Participants**			
** Age range of participants to be enrolled:*	☐ 0 – 6 years	☐ 7 – 11 years	☒ 12 – 17 years	☐ 18 years and over
** Target population will include:* *(check all that apply)*	☐ Male ☐ Female	☐ American Indian / Alaskan Native ☐ Native Hawaiian / Pacific Islander	☐ Hispanic / Latino ☐ Asian	☐ Non-Hispanic White ☐ Black / African American
	☐ Other. Describe:			
** Vulnerable populations to be enrolled:* *(check all that apply)*	☒ Children (age less than 18 years) ☐ Pregnant Women / Fetuses ☐ Prisoners ☐ Individuals with Impaired Decision Capacity ☐ None of the above will be enrolled into this project			
** Will this study include non-English speakers?*	☐ No ☐ Yes. Language(s):			
** During the consent process, will a Legally Authorized Representative be used?*			☐ No	☒ Yes
** Will you apply for a Certificate of Confidentiality?*			☒ No	☐ Yes
** Are you requesting a waiver / alteration of the consent process or documentation of the consent process?*			☐ No	☒ Yes
** Will you compensate your participants?*			☒ No	☐ Yes

Appendix K

Department Review

Departmental Review

The IRB expects that a scientific review be conducted at the department level by either the Department Chair or designee with appropriate expertise in the given research area.

Instructions: Complete the required sections.

Sections marked with an asterisk (*) are required.
Sections marked with a double asterisk (**) are required if applicable.

UNM | Office of the Institutional Review Board
1805 Sigma Chi NE
Tel: (505) 277-2644
Fax: (505) 277-2697
Email: IRBMainCampus@unm.edu

Project Identification	
* *Provide the title of the project:*	**The relationship between a Low Ropes Course experience and the self-concept of first-generation college students.**

Principal Investigator of Record					
* The Principal Investigator of record is: *(select one)*	☒ Principal Investigator	☐ Responsible Faculty			
* Name:	**Dr. Gloria Napper-Owen**	* Phone:	**277-0835**	* Email:	**napperow@unm.edu**
* Department:	**College of Education**	* University Status (e.g. tenure track or visiting faculty, instructor, staff, etc.):	**Tenure Track**		

Additional Contact Person					
** The contact person for this project is: *(select one)*	☒ Student Investigator	☐ Project Coordinator			
** Name:	**Christopher Luna**	** Phone:	**505-440-4987**	** Email:	**cluna@unm.edu**
** Department:	**HESS**	** University Status (e.g. undergraduate, master's or PhD student, staff, etc.):	**PhD Student**		

Departmental Review & Certification	
* *Do you have a conflict of interest (significant personal or financial interest) associated with the review of this project?*	☐ **Yes.** Do not review. ☒ **No.** Complete review.

* As Department Reviewer, I verify that the following criteria are met:

☒	The rationale for the study is clearly stated and the rationale is scientifically sound.
☒	The specific aims and objectives of this study are clearly stated and measurable.
☒	The standards for conducting this research are consistent with any guidelines of relevant professional associations and scholarly disciplines.
☒	The research uses procedures that are scientifically sound and appropriate to the purpose of the study with the least amount of risk.
☒	The study design is adequate to achieve the specific objectives of this study and the proposed participant population is appropriate.
☒	The data to be collected are necessary to the meet the objectives of the study.
☒	Adequate literature review has been done to support and justify this study.
☒	Statistical considerations, including sample size and justification, estimated accrual and duration, and statistical analysis are clearly described and are adequate to meet the study objectives.
☒	The principal investigator & any other researcher involved in this research have sufficient resources/facilities to carry out the research.
☒	The principal investigator & any other researcher involved in this research are qualified by training and experience to personally conduct and/or supervise the research described in the protocol.
☒	The principal investigator & any other researcher involved in this research have completed all institutional credentialing requirements, if any, to conduct the research.

** *Provide an explanation for each box left unchecked:*	
* As department reviewer, I have made the following determination:	**This project is** ☐ **Approved** ☐ **Disapproved**

I certify that the statements herein are true, complete, and accurate to the best of my knowledge, and accept the obligation to assure compliance with all applicable federal regulations and state laws, institutional policies and procedures, and the requirements and determinations of the UNM Institutional Review Board with respect to this research.

Department Chair or Designee			
* Name	* Title	* Signature	* Date

Appendix L

IRB Project Closure

UNM | Office of the Institutional Review Board

DATE: June 13, 2017

REFERENCE #: 14116
PROJECT ID & TITLE: [933907-3] The Relationship Between a Low Ropes Course Experience and the Self-Concept of First-Generation College Students
PI OF RECORD: Gloria Napper-Owen, PhD
SUBMISSION TYPE: Closure/Final Report

BOARD DECISION: PROJECT CLOSED
EFFECTIVE DATE: June 13, 2017

DOCUMENTS:
- Closure/Final Report - closure form.pdf (UPDATED: 06/12/2017)

The UNM IRB CLOSED the project because:

- The project is permanently closed to enrollment.
- All participants have completed all project-related interactions/interventions.
- Collection of private identifiable information is completed.
- Analysis of private identifiable information is completed.

Please note that IRB records must be retained for a minimum of five years after the closure of this project.

The Office of the IRB can be contacted through: mail at MSC02 1665, 1 University of New Mexico, Albuquerque, NM 87131-0001; phone at 505.277.2644; email at irbmaincampus@unm.edu; or in-person at 1805 Sigma Chi Rd. NE, Albuquerque, NM 87106. You can also visit the OIRB website at irb.unm.edu.

References

Anderson, L., Schleien, S., McAvoy, L., Lais, G., & Seligmann, D. (1997). Positive Change through an integrated outdoor adventure program. *Therapeutic Recreation Journal, 31*, 214-229.

Arnett, A. A. (2015). Educators continue to search for ways to open doors for first-generation students. *Diverse: Issues in Higher Education, 32*(20), 6.

Attarian, A. (2001). Trends in outdoor adventure education. *Journal of Experiential Education, 24*(3), 141.

Beard, C., & Wilson, J. (2002). *The power of experiential learning: A Handbook for Trainers and Educators*. Sterling, VA: Stylus Publishing Inc.

Bloom, B. S., (Ed), (1956). *Taxonomy of educational objectives: The Classification of Educational Goals; Handbook I, Cognitive Domain.* New York: David McKay.

Bonwell, C. C., & Eison, J. A. (1991). Active Learning: Creating excitement in the classroom. *ASHE-ERIC Higher Education Report No.1.* Washington, DC: George Washington University.

Bradbury, B. L., & Mather, P. C. (2009). The integration of first-year, first-generation college students from Ohio Appalachia. *NASPA Journal*, *46*(2), 258-281.

Bradish, C. (1995). Therapeutic programming for gay and lesbian youth: How experiential education can support an at-risk population. *Journal of Experiential Education, 18*, 91-94.

Brown, R. (1998). Review of the Tennessee Self-Concept Scale—Second Edition. *In J. C. Impara & B. S. Plake (Eds.), The thirteenth mental measurements yearbook.* Lincoln, NE: Buros Institute of Mental Measurements.

Cason, D. & Gillis, H.L. (1994). A meta-analysis of outdoor adventure programming with adolescents. *The Journal of Experiential Education, 17 (1),* 40-47.

Clifford, E., & Clifford, M. (1967). Self-concepts before and after survival training. *British Journal of Social and Clinical Psychology, 6,* 241-248.

Cohen, J. (1988). *Statistical power analysis for the behavior sciences*. (2nd ed.) Hillsdale, NJ.

Cohen, J., Cohen, P., West, S. G., & Aiken, L.S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences. Third Edition. Routledge:New York.

Conley, L. C. (2007). Evaluation of a ropes course experience for At - risk secondary school students. *Journal of Experiential Education, 30*(1), 21-35.

Conley, L., Caldarella, P., & Young, E. (2007). Evaluation of a Ropes Course Experience for At-Risk Secondary School Students. *Journal of Experiential Education*, *30*(1), 21–35. https://doi.org/10.1177/105382590703000103.

Dent, A. (2006). High ropes and hard times: Wilderness and the sublime in adventure-based education. *International Journal of the History of Sport, 23*(5), 856-875.

Eadie. D. (2009) The partnership tango. *American School Board Journal. 196*(3), 42-43.

Eatough, E., Chang, C-H., & Hall, N. (2015). Getting roped in: Group cohesion, trust, and efficacy following a ropes course intervention. *Performance Improvement Quarterly, 28*(2), 65-89.

Fink, L. (2003). *Creating significant learning experiences: An Integrated Approach to* Designing College Courses. San Francisco: Jossey-Bass.

Finkenberg, M., Shows, D., & DiNucci, J. (1994). Participation in adventure based activities and self-concepts of college men and women. *Perceptual and Motor Skills, 78,* 1119-1122.

Fitts, W. (1971). *Self-concept and self-actualization.* Nashville, Tennessee: Dade Wallace Center.

Fitts, W. H., & Warren, W. L. (1996). *Tennessee self-concept scale (TSCS-2) manual*. Los Angeles: Western Psychological Services.

Foundoulaki, E. S. & Alexopoulos, D. S (2004). Reliability and concurrent validity of Tennessee Self-Concept Scale:2 for children. *Self-concept, motivation and identity: where to from here?* Proceedings of the 3rd International Biennial SELF Research Conference, Berlin, 4-7 July, 2004.

Gass, M., & McPhee, P. (1990). Emerging from recovery: A descriptive analysis of adventure therapy for substance abusers. *Journal of Experiential Education, 13,* 39-35.

Gay, L. (1996). *Educational research* (5th edition). Upper Saddle River, NJ: Merrill Prentice- Hall.

Gerrig, R. J., & Zimbardo, P. G. (2002). *Glossary of Psychological Terms*. Psychology and Life. Boston: Allyn and Bacon.

Gibbons, M. M., & Woodside, M. (2014). Addressing the needs of first-generation college students: Lessons learned from adults from low-education families. *Journal of College Counseling, 17*(1), 21-36.

Gillett, D., Thomas, P., Skok, R., & McLaughlin, T. (1991). The effects of wilderness camping and hiking on the self-concept and the environmental knowledge of twelfth graders. *Journal of Environmental Education, 22,* 33-44.

Gillis, L.H., & Speelman, E. (2008) Are challenge courses an effective tool? A Meta-Analysis. *Journal of Experiential Education, 31*(2), 111-135.

Goldenberg, M.K., Klenosky, D.B., O'Leary, J.T., & Templin, T.J. (2000). A means-end investigation of ropes course experiences. *Journal of Leisure Research, 32*(2), 208–224.

Green, G. T., Kleiber, D. A., & Tarrant, M. A. (2000). The effect of an adventure-based recreation program on development of resiliency in low income minority Youth. *Journal of Park & Recreation Administration, 18*(3), 76-97.

Hahn, K. (1970). *The Education of Thought. On Kurt Hahn and the Development of Outward Bound: A compilation of essays.* London: Outward Bound.

Haras, K., Bunting, C. J., & Witt, P. A. (2005). Linking outcomes with ropes course program design and delivery. *Journal of Park & Recreation Administration, 23*(2), 36-63.

Hardwick, Z. (2014). Colleges differ in first-generation definitions. *The Dartmouth*. Retrieved from http://thedartmouth.com/2014/10/15/colleges-differ-in-first-generation-definitions/First/149289.

Hatch, K. (2005). Exploration of challenge courses' long-term effects on members of college student organizations. *Journal of Experiential Education, 27*(3), 245-264.

Hattie, J., Marsh, H. W., Neil, J.T., & Richards, G.E. (1997). Adventure education and

outward bound: Out-of-class experiences that make a difference. *Review of Educational Research, 67*(1), 43-87.

Henderson, K. (2009). Teams for a new generation: A facilitator's field guide. *Journal of Experiential Education, 31*(3), 460-462.

Hogan, J.M. (1968). *Impelled into experiences: The story of the outward bound schools.* Huddersfield*: E.P. Publishing Company Ltd.*

Housel, T. H., & Harvey, V. L. (2011). Introduction: Shall we gather in the classroom? *New Directions for Teaching & Learning 2011*, *127*, 5-10.

Hoxby, C., & Turner, S. (2013). Expanding college opportunities. *Education Next*, *13*(4), 2-6.

Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-generation students: Time-varying effects of pre-college characteristics. *Research in Higher Education, 44*(4), 433.

Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *Journal of Higher Education, 77*(5), 861-885.

James, W. (1950, 1983 Rev.) *Principles of Psychology*. Magnolia, MA: Peter Smith.

Keppel, G. (1991). *Design and Analysis: A researcher's handbook (3rd ed.).* Englewood Cliffs, NJ, US: Prentice-Hall, Inc. PsycInfo.

Lakens, D, (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for *t*-tests and ANOVAs. *Frontiers in Psychology, 4*, 863.

Leary, M. (2004). *The sociometer, self-esteem, and the regulation of interpersonal behavior.* In R. F. Baumeister & K. D.Vohs (Eds.), Handbook of Self-Regulation: Research, Theory, and Applications (373–391). New York: Guilford Press.

Levin, J., Karnie, E., & Frankel, Y. (1975). Translating objective personality inventories. *Megamot Behavioral Sciences Quarterly, 22*, 81.

Mangan, K. (2015). The challenge of the first-generation student, The Chronicle of Higher Education, May 18, Retrieved from http://chronicle.com/article/The-Challenge-of-the/230137.

Marsh, H.W., Richards, G.E., & Barnes, J. (1986). Multidimensional self-concepts: The effects of participation in an Outward Bound program. *Journal of Personality and Social Psychology, 50 (1)*, 195-204

Miles, J., & Preist, S. (Eds). (1990). *Adventure education*. State College, PA: Venture Publishing, Inc.

Mitten, D. (1992). Empowering girls and women in outdoors. *Journal of Physical Education, Recreation and Dance, 63*, 56-60.

Mortenson, T. G. (2000). The crisis of access in higher education. *Academe, 86*(6), 38.

Mortenson, T. G. (2003). Leading indicator: New England's higher education economy. *Connection*, *17*(5), 15.

National Center for Education Statistics. (2009). *Quickstats* [Chart showing college entrance rates of students by 2008-2009 SES]. NPSAS:2009 Undergraduate Students. Retrieved from http://nces.ed.gov/datalab/quickstats/createtable.aspx.

Nunez, A. (1998). *First-generation students: A longitudinal analysis of educational and early labor market outcomes*. Paper presented at the Annual Meeting of Association for the Study of Higher Education. Miami, FL.

Ong-Dean, C., Huie Hofstetter, C., & Strick, B. R. (2011). Challenges and dilemmas in implementing random assignment in educational research. *American Journal of Evaluation*, *32*(1), 29-49.

Preist, S., Gass, M., & Gillis, L. (2000). The essential elements of facilitations. Bubuque, IA: Kendall-Hunt Publishing Company.

Prouty, D. (1990). *Project adventure: A brief history. In J. Miles, & S. Preiest's, adventure education*. State College. PA: Venture Publishing, Inc.

Rohnke, K.E. (1977*), Cowtails & cobras*. Hamilton, Massachusetts: Project Adventure

Rohnke, K. E. (1991). *Cowstails & cobras II*. Dubquque, IA: Kenall/Holt.

Rosenberg, M. (1979). *Conceiving the self*. New York: Basic Books.

Rotter, J.B. (1954). Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice-Hall, Inc., ix, 466 pp. http://dx.doi.org/10.1037/10788-001

Schoel, J., Prouty, D., & Radcliff, P. (1988). Islands of healing: *A guide to adventure based counseling.* Hamilton, MA: Project Adventure, Inc.

Shavelson, R.J., Hubner, J.J., & Stanton, G.C. (1976). Self-concept: Validation of construct interpretations review. *Education Resource, 46*, 407-441.

Somers, P., Woodhouse, S., & Cofer, J. (2004). Pushing the boulder uphill: The persistence of first-generation college students. *NASPA Journal, 41*(3): 418-435.

Steffen, J., & Cross, R. (1994). Adventure education for at-risk college students. *Research Quarterly for Exercise & Sport, 65*(1), A-83.

Supiano, B. (2014). When is a student 'first generation'? Words fail us, *The Chronicle of Higher Education,* October 9, Retrieved from http://chronicle.com/article/When-Is-a-Student-First/149289/.

Teaf, J., & Kablach, J. (1987). Psychological benefits of outdoor adventure activities. *Journal of Experiential Education, 10,* 43-46.

Witman, J. (1987). The efficacy of adventure programming in the development of cooperation and trust with adolescents in treatment. *Therapeutic Recreation Journal, 21*(3), 22-29.

Wolfe, B.D., & Dattilo, J. (2006). Participants' perceptions of communication during and after a one-day challenge course program. *Journal of Experiential Education, 29*(2), 126.