

THE EFFECTS OF A CHALLENGE COURSE PROGRAM ON RISK TAKING
BEHAVIORS AMONG COLLEGE STUDENTS

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DEDICATION

This thesis is dedicated to the Outdoor Education Program at California State University, Chico, which existed from 2002-2012, and to all the students who benefitted from that program in their personal and professional lives. It is also dedicated to Dr. Reid Cross, who was a mentor and friend throughout this process.

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ABSTRACT

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The purpose of this study was to examine the effects of participating in a challenge course program on decreasing the prevalence of substance abuse, reckless driving, and sexual promiscuity among college students. These negative risk-taking behaviors were evaluated due to their ramifications on individual development and college campus culture. Challenge course programs were selected as the treatment in this study due to the interplay between risk and developmental growth. Results showed a significant decrease in binge drinking and marijuana use in the treatment group.

CHAPTER 1

INTRODUCTION

Statement of the Problem

Adolescents need the opportunity to take risks in a controlled environment where potential outcomes are not life threatening. In the present study, the researcher evaluated risk-taking behaviors among college students due to their negative ramifications for individual development and college campus culture. A ropes course experience is an ideal location in which to take risks and have new experiences in a controlled environment where safety precautions are taken.

Purpose of the Study

The current study was a continuation of a master's thesis by Amy Conroy (2011). The purpose of this study was to explore the three main areas of adolescent risk taking—substance abuse, reckless driving, and sexual promiscuity—and ascertain whether a semester-long class taught on a challenge ropes course, which focused on personal and social responsibility, mindfulness, and social justice, would have mitigating effects on any of the identified areas. Utilizing a challenge course as the treatment in this research was an intentional decision, based on the fact that interplay between risk and personal development is part of challenge course programs (2011).

This study consisted of a pre-test post-test design; the participants in both the control group and the treatment group completed a 10-question survey about their habits in the following areas: substance abuse, reckless driving, and sexual promiscuity.

Scope of the Study

The participants in this study self-selected from two different courses taught in the Kinesiology Department (KINE) at the California State University, Chico (CSUC). The control group comprised students enrolled in KINE 247 World Sport and Games and the treatment group comprised students enrolled in KINE 222 Challenge Quest. Both classes are electives that enroll first-year students to seniors. KINE 222 Challenge Quest is a three-credit course taught exclusively on the university's challenge ropes course. The class meets for two hours twice per week for 16 weeks, which equates to 64 contact hours (Chico State, 2016). The purpose of the class is to teach personal and social responsibility through adventure education, using experiential education teaching methods (2016). KINE 247 World Sport and Games is a three-credit course and has the same meeting pattern as KINE 222. The focus of KINE 247 is to develop an understanding of how sports are integrated into cultures around the world (Chico State, 2016).

The control group included 84 students (71% female; 29% male) and the treatment group included 33 students (48% female; 52% male), with ages ranging from 18-26. The average age of the control group was 19 years old, and the average age of the treatment group was 20 years old. The researcher collected pre-test data during the first 20 minutes of class on the first day after the university drop date had passed. Participants filled out an online survey through SurveyMonkey and the data was collected electronically. At the end of the semester, during the week prior to final exams, the researcher collected post-test data by administering the survey again in the same manner.

Definition of Key Terms

Adventure education

Programs that utilize the outdoors for activities, which are often high energy and physically intense in nature. Such programs can include, but are not limited to, challenge or ropes courses, hiking, whitewater rafting, kayaking, single- or multi-day wilderness trips, and wilderness therapy, all of which have high levels of physical risk or perceived risk. Prouty, Panicucci, and Collinson (2007) defined adventure education as: “direct, active, and engaging learning experiences that involve the whole person and have real consequences” (p. 12).

Healthy risk-taking

Risk-taking activities, often involving sports, which are a “socially acceptable outlet for the need to engage in sensation seeking” (Gonzalez et al., 1994, p. 703).

Negative risk-taking

Activities that include physical, emotional, or psychological danger. Such activities may include drug or alcohol use, driving over the speed limit, breaking the law, and having unprotected sex.

Challenge by choice

Creates an environment where participants are asked to search for opportunities to stretch and grow during the experience. Student learn how to set goals that are in neither the comfort nor the panic zone, but in that slightly uncomfortable stretch zone where the greatest opportunities for growth and learning lie. (www.pa.com)

Perceived social support

Social support is defined as the experience or perception of being cared for, valued, included, and/or guided by others, especially one’s family, peers, and/or community

members. Social support from peers, teachers, and parents has been recognized as a protective factor for children and teens(www.pa.com).

Challenge course

A series of anchored wires and ropes with poles, natural trees, or constructed structures, ranging in height from 20-50 feet. Courses can be designed to allow participants to engage in single activities or connected by a series of cables to allow participants to flow from one activity to another while maintaining their position on the high element. Low elements typically involve activities on the ground or on structures just a few feet off the ground.

Disequilibrium

“Refers to an individual’s awareness that a mismatch exists between old ways of thinking and new information. It is a state of internal conflict that provides motivation for an individual to make personal changes” (Nadler & Luckner, 1994, p. 7).

Adventure-based counseling

A form of counseling that utilizes the outdoors with ropes courses, low element challenge courses, and multi-day activities, to serve as a change agent both within individual participants and the group as a whole (Fletcher & Hinkle, 2002).

Limitations of the Study

The research was conducted with a population of college students enrolled at Chico State University. The researcher was not present at the university, making it more difficult to collect data effectively and resulting in fewer participants than anticipated participating in the pre- and post-surveys.

The participants were not required to participate in both the pre-test and post-test, making some surveys unusable. Requiring participants to take both the pre- and post-tests would ensure a larger control and test group.

The researcher acknowledges that the survey results through Survey Monkey were self-reported by participants, which is not always an accurate depiction of a participant's behavior and habits. The post-test is immediately after the course and the findings do not necessarily reflect any long-term changes in risk-taking behaviors.

The survey was also not done by random assignment, and lack of random assignments does not allow the researchers to make causal inferences between variables.

Research Questions

Utilizing a control group, who are active college students, but have not participated in challenge course program while in college and a treatment group of college students who have participated in a challenge course program the following hypothesis will be tested (Conroy, 2011).

Null Hypothesis 1: There will not be a significant difference in binge drinking habits between the control group and treatment group.

Null Hypothesis 2: There will not be a significant difference in driving and drinking habits among the control group and treatment group.

Null Hypothesis 3: There will not be a significant difference in the marijuana use among the control group and the treatment group.

Null Hypothesis 4: There will not be a significant difference in the illicit drug use among the control group and the treatment group.

Null Hypothesis 5: There will not be a significant difference in pregnancy prevention methods among the control group and the treatment group.

Null Hypothesis 6: There will not be a significant difference in the number of sexual partners reported by the control group and the treatment group.

CHAPTER 2

LITERATURE REVIEW

Overview of Outdoor Education

Scholars and practitioners have used a broad array of terms to describe various curriculum models in the field of outdoor education, such as: adventure education, experiential education, camping education, recreation education, challenge education, play education, and humanistic education. Because there is considerable overlap in these terms, it is difficult to tease out the precise role of each sub-discipline. Therefore, developing a clearer understanding of these areas requires a definition that is broad enough to include all commonalities. The 1975 Darlington Conference defined outdoor education as education that pertains to living, moving, and learning in the outdoors. This is an inclusive definition and encompasses the role of outdoor education, as well as other types of education.

However, it is important to note that, in outdoor education, the term *outdoor* does not simply refer to being outside. Outdoor education requires self-reliance and reliance on others in outdoor settings. Taking an English class to the park to discuss Byron and Keats would not be considered outdoor education. However, an extended wilderness trip where the participants rely on one another and the environment, as well as discussing Byron and Keats, should be classified as outdoor education.

Ewert (1989) has defined programs focusing on education through outdoor activities as outdoor adventure education. Ewert (1989) distinguished between education-based programs and recreation/leisure-based programs, and described

programs focusing on recreation as outdoor adventure recreation. While both categories share many activities and the same environmental setting, education is focused on the learning taking place, whereas recreation is focused on the excitement and socialization. Adventure alludes to the risk involved and the skills required to survive in an outdoor environment.

Outdoor adventure education is learning that occurs through a variety of adventure-centered experiences. According to John Hunt & The National Association of Outdoor Education (NAOE):

Outdoor Education is a means of approaching educational objectives through guided direct experience in the outdoor environment, using its resources as learning materials. This experience combines both a study of environmental aspects and topics and participating in those activities associated with the natural environment. (Hunt, 1989, p. 53)

Participants' experiences with the outdoors go beyond recreational endeavors, and require the participants to "journey out" into unfamiliar territories with new challenges and risks. Outdoor adventure education stimulates individuals' personal and social development, creating more investment in their own learning as well as increased trust in their own judgement and self-efficacy (Miles & Priest, 1990).

Risk is a major factor in adventure programing, experiential education, and challenge courses. Real risk involves the danger inherent in the task at hand. With regard to challenge courses, participants work with elements that include the risk of falling off an element with a harness on belay from 30 feet in the air. The real risk is the fall and the possibility of someone making a mistake in the safety precautions build in, like a incorrectly tied knot, or a faulty harness. Perceived risk is the participants' anxiety and fear about the task ahead. For example, high ropes elements 30 feet above the ground involve participants jumping, fully-harnessed, off a pole to grab a trapeze swing;

this action produces a high level of perceived risk and may cause anxiety (Wolfe & Samdahl, 2005). The balance between the risk involved and the competence of the individual creates varying circumstances for success and failure. When skill level is high, and risk is low, participants can explore and experiment. When participants reach a balance between risk and skill, they can experience peak adventure. This adventure situation, in where risk and competence are equal, is similar to flow theory (Wolfe & Samdahl, 2005). When risk outweighs competence, misadventure can occur. When risk significantly outweighs competence, devastation and disaster can occur. With both peak adventure and misadventure, learning and recovery can occur; because there is no recovery from devastation and disaster, it is an undesirable outcome (Wolfe & Samdahl, 2005, p. 26).

History of Adventure Programing

While some assume that the idea is novel, using adventure activities in education can be traced back as far as Plato's *Republic*, which includes a discussion of the benefits of teaching through experience (Hamilton & Cairns, 1961). Plato contended that being exposed to physical risks allowed individuals to learn certain virtues they could not learn elsewhere. According to Hunt (1990), in Plato's time, virtue did not refer to sexual purity; instead, it meant to exhibit excellence through practice. Therefore, Plato positioned leadership, responsibility, and cohesiveness with other men as the virtues that risk and adventure could teach (Hunt, 1990). The risk Plato proposed was sending youth to observe and participate in war (Hamilton & Cairns, 1961). While Plato argued that the youth should be exposed to danger, he also suggested that, if the threat to life became too great, there should be a secured means of escape. Therefore, it is likely that Plato's

writings constitute the first recorded usage of perceived risk philosophy, which is common in today's adventure education programs, in an educational context.

In the intervening years, perceived risk philosophy remained on the periphery of education research. In the nineteenth century, William James published several essays about education, which began to integrate discussions of adventure and risk into mainstream scholarship on education. In *The Moral Equivalent of War*, James (1910/1972) addressed the necessity of risk and physical hardship in education in terms of developing the whole person. Without risk and physical hardship, James (1910/1972) suggested, life “would be contemptible” (p. 317). According to James, education was lacking without physical challenge and adventure. Unlike Plato, James did not advocate war, but did insist that the risks involved in war bring out many virtues in people.

In *Talks to Teachers*, James (1899) insisted that good education is holistic, that people are too complex to rely on just the mental aspects of education, and that “total mental efficiency of a man is the resultant of the working together of all his facilities” (p. 114). James (1910/1972) suggested that, because military life involved physical risk and was physically challenging, it facilitated the development of cultural ideals and values important to personal growth. Rather than advocating a militaristic society, James (1910/1972) emphasized the need to retain the unique qualities of military life that contributed to personal growth. James' proposed substitute for participation in the military was a conscription of men in what he termed fights “against nature” (p. 325). He proposed that males should spend a portion of their lives in fishing fleets, coal mines, or logging camps, among other endeavors that take place outside and are physically demanding and risky. In the framework of contemporary outdoor education, these

activities may be considered environmentally destructive. However, addressing James' (1910/1972) work in the context of its time and focusing on the purpose of these activities rather than the activities themselves, it is evident that the same values James addressed can be accomplished in risk and adventure activities today.

Kurt Hahn, who is considered the father of adventure education, accomplished just this in Germany during the 1930s. According to Hunt (1990), Hahn addressed adventure as a tool to achieve the overall goal of education. Like William James, Hahn could not conceive of education that did not include the teaching of values and character, and described these virtues in connection with increased self-concept and self-confidence (Hunt, 1990). Hahn believed that civilization was diseased, and therefore sabotaged the emotional fiber of young people before they could grow up (Richards, 1990). A common thread among the educational philosophies proposed by Plato, James, and Hahn is the need to teach in a manner that can enhance the growth of the whole person. Teaching to the whole person involves teaching to the affective domain as well as to the cognitive and psychomotor domains, as well as, according to Hellison (1991), attending to a student's personal and social skills, attitudes, and values. Hahn suggested that risk and adventure methods can instill self-confidence and a positive self-concept and should therefore be a focal point of education (Richards, 1990).

Hahn, a Jewish educational scholar, was heavily influenced by Plato's *Republic* and educated at Oxford University between 1910 to 1914. Hahn established his first school, Salem Schule (which translates as Peace School), in Germany in 1920; the curriculum was focused on personal responsibility, equality, social justice, respect, and service to the community (Priest & Gass, 2005, p. 28). The Salem Schule closed in 1932

because Hahn was imprisoned for speaking out publicly against Hitler. Hahn was released at the request of the British government and exiled to the United Kingdom. Hahn established his second school, the Gordonstoun School, in the UK in 1934, with a similar curricular emphasis as the Salem Schule. However, the school closed when Hahn was unable to maintain the location of the school due to WWII. Hahn founded his best-known school, along with Lawrence Holt and Jim Hogan, in Aberdovey, Wales in 1941. The three men shared a belief in the importance of providing young sailors and other youth with an experience that would transform their attitudes from sullen to engaged and confident, particularly after WWII. This month-long, adventure programming school became known as Outward Bound. Outward Bound courses focused on orienteering, search and rescue training, athletics, small-boat sailing, ocean and mountain expedition, obstacle-course training, and service to the local community (Priest & Gass, 2005).

Importantly, Outward Bound's obstacle courses were predecessors to contemporary challenge and ropes courses. The obstacle course was built in the trees, and designed to mimic sailing at sea. Participants would swing from ropes, cross rope bridges through the trees, and climb up and down both roped cargo nets and smooth walls to prepare for their time at sea. More importantly, this enabled them to build self-confidence and the ability to work with others (Minor, 1990, p. 59). Minor (1990) articulated the Hahnian principle of the school thus: "The training...must be less a training for the sea than through the sea, and so benefit all walks of life" (p. 59).

Hahn outlined six deficits among youth as a result of social circumstances after WWII, which influenced Outward Bound's curricular emphasis:

1. fitness, due to modern methods of locomotion;

2. initiative and enterprise, due to the widespread disease of “spectatoritis”;
3. memory and imagination, due to the confused restlessness of modern life;
4. skill and care, due to the weakened tradition of craftsmanship;
5. self-discipline, due to the ever-present availability of stimulants and tranquilizers; and
6. compassion, due to the unseemly haste of modern life. (Priest & Gass, 2005, p. 29)

Due to the high demand for adventure programming by various organizations, the Outward Bound school eventually established campuses across 35 countries. The schools worked with a wide range of clients, including at-risk youth, recovering substance abusers, and corporate business executives (Outward Bound International, 2018). The social challenges youth face today are similar in some respects to the six deficits Hahn identified. While the reasons for these declining skills may have changed, the ways in which Outward Bound endeavors to remedy them have not (Outward Bound International, 2018). As Hahn articulated:

. . . you and I would agree that indoctrination is of the devil and that it is a crime to force anybody into opinions but I, unlike you, consider it culpable neglect not to guide and even plunge the young into experiences which are likely to present opportunities for self-discovery. If you spare the young such experiences, in deference to their wishes, you stunt their natural growth of basic human qualities which they will need for their own happiness and for the service to their fellow men.

Responding to the evident benefits of the Outward Bound program, various organizations and programs started to use Hahn’s ropes course or challenge course curriculum. Churches, schools, and businesses, among other types of institutions, built their own challenge courses because they recognized the potential of such programs for both individual and group development. One such program, Project Adventure, addressed the need to bring these experiences to youth in the education system. Jerry Pieh began Project Adventure by organizing teachers and former Outward Bound staff to

collaborate in bringing adventure programming and challenge courses to mainstream education (Priest & Gass, 2005).

The challenge course is an important part of adventure programming and outdoor experiential based learning. Challenge courses offer a unique opportunity for a variety of groups and individuals to bond and grow. Goldenberg (1998) suggested that: “Ropes courses provide an environment in which leadership skills, communication, team building and group dynamics can be developed” (p. 42). Challenge courses are designed to enable individuals to use their communication and problem solving skills, as well as building trust among members of a group. These programs include an intentional progression for solving tasks: starting on the ground with ice breaker games, then moving to low elements on the course, and finishing with high elements where participants wear helmets and harnesses and are suspended in the air with safety gear. Each progression has a specific purpose in terms of slowly building trust and establishing a safe space in which group members can be vulnerable. This progression mirrors the stages of group dynamics.

Breunig, Cashel, Martin, and Wagstaff (2006) defined a group as “two or more individuals in face-to-face interaction, each aware of his or her membership in the group, each aware of the others who belong to the group, and each aware of their positive interdependence as they strive to meet mutual goals” (p. 135). The five stages of group dynamics are: forming, storming, norming, performing, and adjourning. Progressing through the five stages is a maturation process of coming together. Participants are introduced, get to know one another’s strengths and weaknesses, and learn how to work together to accomplish the task at hand. Individuals progress through these five stages

not only in ropes course environments, but also throughout other collaborative situations in life. While these stages are commonly illustrated as a progression, it is also reasonable for the dynamics to ebb and flow through the stages. For example, participants may progress through the first four steps to reach the performing stage, but then move back to earlier stages under certain circumstances. However, this should not be considered a regression, because group dynamics are a constantly changing and living system, in which individual changes can greatly impact the group dynamic and necessitate a restructuring process. These stages can be used to explain how an individual reacts to group structure and a given task activity. The group structure is the pattern of interpersonal relationships and the way members act and relate to one another. The task activity is the content of interaction, as related to the task at hand. Group structure and task activity often occur simultaneously (Tuckman, 2001). Some examples of task behaviors are “asking for information, giving information, defining directions, summarizing what others have said, and energizing the group” (Breunig et al., 2006, p. 136).

There are three main functions of an effective group: “accomplishing goals, maintaining itself internally, and changing in ways that improve its effectiveness” (Breunig et al., 2006, p. 136). The structure of the group is dependent upon the development of role definitions and group norms. A role can be defined as the set of behaviors expected by a certain position in the group. For example, the leader is expected to initiate the first step to achieve a task, and the followers are expected to execute the task. In the follower role, it is important that every member is considered valuable and is aware of her positive interdependence within the group. The group norm

is a “parameter that defines acceptable behavior in the group” (Breunig et al., 2006, p. 137). An effective group becomes a “we” instead of “I” (Breunig et al., 2006).

An effective group is also characterized by decision making ability and good communication. Decision making a necessary step in the problem-solving process that allows a group to achieve agreed-upon goals. As Breunig et al. (2006) contended: “A decision implies that an agreement has been made about how a group will accomplish its goals” (p. 137). There are five components of effective decision making:

1. the resources of the group are fully utilized,
2. time is well used,
3. the decision is of high quality,
4. the decision is fully implemented by all group members, and
5. the group’s problem solving ability is enhanced. (Breunig et al., 2006, p. 137)

Many factors can impede effective group decision making, including egocentrism, inappropriate group size, unwillingness to hear disagreements about ideas, lack of time, and failure to communicate (Breunig et al., 2006). Regarding group communication, Breunig et al. (2006) noted that “Communication involves sending messages effectively” and “receiving messages effectively” (p. 137). The responsibility for effective communication falls to the leader of a group. Communication is integral to all five stages of group development, as well as conflict resolution, goal setting, and decision making.

The first stage, forming, is the orientation to the task, in which participants are able to test and discover dependencies (Tuckman, 2001). In the second stage, storming, participants are resistant to group influence and task requirements, which results in intragroup conflict. At this stage, participants may also experience an emotional response

to the task demands (Tuckman, 2001). The third stage, norming, is when participants exhibit feelings of cohesiveness and develop comfort in the standards that have emerged and the roles adopted. During this stage, the group has an open exchange in which participants can express relevant interpretations as well as intimate and personal opinions (Tuckman, 2001).

During the fourth stage, performing, participants take constructive action. The roles become flexible and functional, structural issues are resolved, and the structure can support task performance. Interpersonal structure is key in this stage, because it is the tool for task activities that can be used to create solutions as the group focuses their efforts into the task seamlessly (Tuckman, 2001).

The fifth stage, adjourning, is characterized by participants disengaging from the group. They may feel anxious and sad about parting ways and experience feelings toward other group members and the leader. This stage also includes self-evaluation of the task activity (Tuckman, 2001). These stages can apply to various adventure programming activities, such as backpacking, rafting, orienteering, or ropes/challenge courses, as well as everyday life.

The purpose of a ropes course is to provide “exciting experiential opportunities that focus on leadership, team building, personal growth, problem solving, communication skills, and self-esteem” (Goldenberg, 1998, p. 42). Experiential education is defined as learning by doing, in which facilitators assign participants a task to solve that matches their skills and abilities, which allows for optimal performance. When participants are in this optimal space or “flow,” the challenge they must accomplish matches their skill set, allowing them to be completely present in the task at

hand, focused, and to learn by doing (Goldenberg, 1998).

Goldenberg (1998) noted that experiential education allows individuals to learn through the senses, specifically using sight, touch, hearing, and smell on a ropes course. Typically, the course is divided into low and high elements. The low elements allow participants to “focus on problem solving, communication and teamwork,” while high elements “also promote team objectives, but tend to be more individually based to help build confidence and push people to their limits via ‘risk’ activities or challenges” (Goldenberg, 1998, p. 44). “Risk” activities are actually “perceived risk” activities, in which the actual risk to the participant is very low as safety is a priority in both low and high elements. Priest and Gass (2005) have defined low challenge course activities as those requiring spotting and high challenge course activities as those requiring belaying. Challenge courses can be further divided into four categories: (1) socializing games, (2) group initiatives, (3) low elements, and (4) high elements (Wolfe & Samdahl, 2005, p. 26).

Socializing games are introductions to fellow participants and the facilitators; personality characteristics may become apparent during this stage, which does not include the use of any elements. During group activities, participants shift toward building trust and confidence in each other. Wolfe and Samdahl (2005) suggested that this stage uses “problem solving in the form of physical obstacles present by the facilitator(s)” (p. 26). Participating in a ropes course allows participants to develop confidence in and awareness of what they can do, can’t handle, and are capable of. The next progression is low elements, in which spotters watch their teammates attentively to support them and to catch them if they fall. Low elements are group-oriented and use

pre-constructed equipment on or near the ground. Participants work together, typically trying to get from point A to point B with a contrived limitation, which facilitates the development of trust and teamwork (Wolfe & Samdahl, 2005).

High elements, the last stage of the course, are only undertaken using a full belay system, including a rope, harness, helmets, and a belayer. The belayer is in charge of keeping the rope secure while the participant climbs up to the high elements, which range from 20-40 feet above the ground. The participant wears traditional climbing gear, including a harness and a helmet. The rope is also secured to the high elements, with many possible variations, so that the participant is safe should they slip or fall (Goldenberg, 1998). The equipment and safety precautions are in place to ensure that no accidents occur and participants are able to overcome perceived risk. The challenge presented is typically designed for the individual participants to “find the strength within themselves to do something they thought they could not do” (Wolfe & Samdahl, 2005, p. 27). The purpose of the progression is for participants to use the initial stages to develop the confidence and trust they will need to overcome the physical and emotional challenges of the high elements (Wolfe & Samdahl, 2005).

The facilitator also plays a significant role in participants’ experience. The facilitator is in charge of setting up the course, running the low and high elements safely, then choosing a method for participants to debrief and process their experience. Because there are many debriefing techniques, it is important that facilitators choose one that is appropriate for the particular group. As Goldenberg (1998) noted: “Debriefing is when the facts are revisited and observations are shared,” while “processing is the search for the meaning in the debriefing session” (p. 45). Again, the facilitator usually helps open

up the discussion, encourages participants to share what was true for them, frustrations, what worked and what didn't, and their feelings about how things could have been done differently or were done well. A skilled facilitator will also ask participants to apply what they have learned to a real life experience so they can transfer their new confidence and knowledge to their everyday lives (Goldenberg, 1998).

Some of the core benefits participants experience as a result of participating in a ropes course are communication, team building, group dynamics, and leadership, all of which are required in order to successfully complete a task. These four skills are also transferable to participants' everyday lives. Communication, both verbal and non-verbal, is key in professional and interpersonal relationships. On the ropes course, communication allows each member of the team to share their thoughts, needs, position, ideas, and restrictions in order to complete the task. Working as a member of a team is becoming increasingly important in society, as many work environments call for collaboration.

Interpersonal relationships can be defined as a team, even a team of two, with diverse backgrounds coming together for a greater purpose and establishing "patterns of interaction, and some commonly agreed upon system of order" (Ford & Blanchard, 1986, p.184). If this occurs, team members will then perform more effectively and efficiently. The ideal group size is between five and fifteen participants; this situation facilitates information sharing, goal setting, problem solving, and decision making in a timely manner (Goldenberg, 1998). Within these groups, types of leaders include self-appointed leaders, group-appointed leaders, and emerging leaders. The self-appointed or group-appointed leader usually has some charisma and experience; the group may look up to

this type of leader. The emerging leader is not initially chosen but instead emerges to assume leadership at the right moment (Ford & Blanchard, 1986, p. 184).

Gillis and Speelman (2008) conducted a meta-analysis of 44 studies “that examined the impacts of participation in challenge course activities” (p. 111) in recreational, educational, recreational, and therapeutic programs. The authors found that “challenge courses are an effective tool for impacting a variety of educational and psychological constructs with a variety of participants” (Gillis & Speelman, 2008, p. 127). Ropes courses can be implemented in different settings: recreational, educational, developmental, and therapeutic (Gillis & Speelman, 2008, p. 116). Educational programs are “intended to improve the overall performance of students at school,” whereas developmental programs are “designed to improve behaviors of the participants” (Gillis & Speelman, 2008, p. 116). Therapeutic programs are intended “to change patterns of behavior of the participants” (Gillis & Speelman, 2008, p. 116). As Gillis and Speelman (2008) noted: “These effects have practical significance for participants when compared to those who were assessed on similar constructs but did not have a challenge course experience” (p. 127). This practical significance translates to participants’ everyday lives. Gillis and Speelman (2008) found that participants experienced positive changes in their family and group interactions after their challenge course experience; further, their self-efficacy improved, with a higher outcome measure than self-esteem (p. 129).

It is not unreasonable to apply the theory surrounding challenge courses to the context of everyday life for adolescents. Far too often, the risky behaviors adolescents participate in—including drinking, drugs, unprotected sex, and driving under the

influence—culminate in devastation and disaster. Adolescence is a complicated developmental period with ever-changing social expectations.

Adolescent Development

Adolescence is a difficult time of life, during which individuals are often consumed with searching for the meaning of life and figuring out where they fit into society. Unfortunately, this search can prompt unhealthy behaviors, including alcohol and drug use for the purpose of experimentation, recreation, and self-medication, reckless driving, unhealthy relationships, and extreme “sensation seeking” experiences. While individuals experience unique life challenges, all teenagers and young adults are working through a challenging time in their lives that is often filled with questions, concerns, and frustrations (Conroy, 2011, p. 3).

Adolescents must navigate several key milestones in order to gain the necessary skills to take on the next set of life circumstances. Although values of responsibility, communication, problem-solving, leadership, and clear connection to self are integral to success in wider society, attaining such skills can be exhausting and frustrating for adolescents due to the biological, emotional, social, and physical changes they are experiencing (Conroy, 2009). Additionally, characteristics of impulsiveness, moodiness, and self-proclaimed inferiority are used to describe this population (Alberts, Elkind, & Ginsberg, 2007; Gonzalez et al., 1994; Warner, 2009). Changes in the brain throughout adolescent development—beginning around the ages of nine to 11 and continuing through the early 20s—mean that the brain is working overtime to make the biological connections that allow for healthy cognitive processing, emotional stability,

and successful reasoning skills (Chamberlain, 2008; Gonzalez et al., 1994; Warner, 2009).

The stereotyped view of adolescents is that they are rebellious, distracted, thoughtless, and daring. As well as experiencing a surge of hormones they have to learn to manage, young people often lack clear roles in Western society, causing them to feel unsure of their place. Many cultures have various rites of passage, or formal ways to assist in the transition from childhood to adulthood, which has never been an easy process. Initiations into adulthood occur differently for different cultures; for example, in terms of religious ceremonies, adolescents might participate in a Christian Confirmation or Jewish Bar Mitzvah (Csikszentmihalyi & Larson, 1984, p. 3).

Adolescence, from a biological perspective, should be a highlight of an individual's life. Most physical and mental functions, such as speed, strength, reaction time, and memory, are at their peak during the teenage years: "Perhaps more than anything else, teenagers have a remarkable built-in resiliency, seen in their exceptional ability to overcome crises and find something positive in negative events." This can be classified as misadventure in everyday life: "despite this resilience, however, for some teens these years are more stressful than rewarding—in part because of the conditions and restrictions that often accompany this period in life" (Encyclopedia Britannica, 2014).

Adolescents generally find that activities involving physical movement—sports, dance, and drama, for example—are among the most pleasurable and gratifying. Ironically, the opportunities for participation in such activities have dwindled, largely because budget concerns have led schools to cut many nonacademic subjects such as physical education. (Encyclopedia Britannica, 2014).

This highlights the need for adventure education to be incorporated into mainstream education systems.

Willoughby's studies of brain development studies show a disparity between the early-developing emotional centers of the brain and the later-developing logical control centers, which indicates that the period of life in which individuals experience the greatest need for sensation and the least available self-control is middle adolescence, roughly around age 15 (Cross, et al., 2017). However, it is important to consider whether this peak in vulnerability actually correlates with the highest levels of risk-taking behaviors. The results of several longitudinal studies indicate that it does not. For example, results from a survey of ninth- through 12th-grade students indicate that rates of alcohol consumption, smoking, drug use, and delinquency increased gradually during the high school years to a maximum level in Grade 12 (between ages 17 and 18), rather than peaking around middle adolescence (2017).

Furthermore, researchers have reported that the highest level of risk-taking behavior consistently occurs during college age, with the most favorable attitudes toward risk occurring at ages 20 and 21, particularly with respect to alcohol use (Willoughby, et.al., 2013 as cited by Cross et.al., 2017). Paradoxically, college bound students who take fewer risks in high school than their non-college-bound peers go on to surpass them once they enter the university setting. Data from the US and Canada also show notable declines in alcohol and drug use among high school students since the 1970s, which correlates with aggressive public campaigns against these behaviors during the ensuing decades. These discrepancies suggest that social environment may outweigh biology in determining vulnerability to risky behavior (Cross et al., 2017).

Willoughby (2013) points out that a common assumption present in adolescent studies is that risk taking is an impulsive behavior resulting from a lack of self-control. Social context, however, complicates this assumption. For example, the possibility of social rewards such as group acceptance and romantic success often leads to deliberate risk taking. Planned risk taking may even require teens to exert self-control to overcome fear of negative consequences or aversions: for instance, to the taste and smell of alcohol. Adolescents who have high expectations of obtaining social benefits as a result of alcohol consumption demonstrate greater frequency of consumption than those with lower expectations. Students who dislike alcohol, but believe their friends enjoy it, are more likely to drink than those who believe their friends dislike alcohol as well. Extant research has not yet provided sufficient data on whether adolescent risk behavior is more likely to be planned, unplanned, or a combination of both (such as planned drinking, but unplanned drunkenness). Adventure programming, in which risk is an element of the activity, can provide an alternative to these risk taking behaviors in college (Cross, et al., 2017).

While neuroscientists used to believe that the majority of brain development was complete by the age of three, new imaging technologies have been used to show that the human brain continues to develop throughout the entire lifespan (Jetha & Segalowitz, 2012, p. 2089). According to Roaten and Roaten (2012), with the exception of the first three to five years of life, adolescence is the most significant period of brain development (Roaten & Roaten, 2012, p. 1). The maturation process does not occur evenly in the brain at a steady rate throughout adolescence; instead, it occurs in stages in different parts of the brain at different times (Wetherill & Tapert, 2012). Further, the brain does not

mature in exactly the same way for males and females, as the brain responds to male and female hormones in different ways as puberty progresses (Chamberlain, 2008). In relation to the “nurture versus nature” debate, it is necessary to understand the physiological significance of these changes in terms of increased risk-taking behavior before addressing the effects of nurture.

The earliest areas of the brain to develop are the lower regions—the brainstem and the mid-brain—which control basic body functions such as regulating body temperature and blood pressure and are often referred to as the “survival brain” (Chamberlain, 2008). The upper brain, consisting of the cerebral cortex and the limbic system, develops later; the cortex is not thought to be fully mature until the mid-20s (Willoughby et al., 2013). According to Chamberlain, 2008, the limbic system is primarily responsible for memory and emotion, and consists of the hippocampus, the amygdala, and the hypothalamus; the prefrontal cortex, located right behind the forehead, is the seat of the intellect, controlling reason, logic, and rational thought (as cited by Cross et al., 2017). The cerebellum primarily controls movement, but also plays a role in the ability to recognize social cues and is the last part of the brain to mature (Anderson, 2015).

These different maturation rates cause teens to process information differently than adults. While adults rely primarily on the mature frontal lobes—reason and language—to respond to situations, adolescents are more reliant on the limbic system, particularly the amygdala, and thus more likely than adults to respond emotionally to similar stimuli. The amygdala and the hypothalamus are involved in the body’s response to fear and danger; reliance on this part of the brain over the cortex also predisposes teens

to react more quickly, without considering the consequences of their actions. The hippocampus, which helps in transferring information to long-term memory and is strongly associated with facilitating social interaction, is sensitive to estrogen and grows faster and larger in young women, whereas the amygdala and hypothalamus are sensitive to male sex hormones and grow faster in young men. This may help explain why young men exhibit more action-oriented responses to stress and excitement, whereas young women are more likely to excel in social response (Chamberlain, 2008, as cited by Cross et al., 2017).

This second major phase of brain development occurs between the ages of 11 and 24. The brain is composed of approximately 100 billion neurons, which are the only cells in the body that do not touch and instead rely on neurotransmitters, a chemical produced in the brain, for cell to cell communication (Roaten & Roaten, 2012, p. 5). As Roaten and Roaten (2012) noted, “The space between cells, or synapses, are formed early on” (p. 5); vast numbers of these synapses develop as a result of an adolescent’s engagement in experiential activities.

Jetha and Segalowitz (2012) have also contended that changes in the adolescent brain are influenced by experience (p. 2089). Brain development and synaptic connections depend on the adolescent’s exposure to positive or negative experiences. Positive activities can include participation in sports, music, or the arts, while detrimental activities may include alcohol and other drug use, unhealthy relationships, and reckless driving. These “risky” behaviors and decision making involving the use of alcohol, drugs, sexual promiscuity, and reckless driving have powerful and long-term effects (Chamberlain, 2008; Gonzalez et al., 1994; Romer, Duckworth, Sznitman, & Park, 2010).

Synaptic pruning is the process of strengthening neuron pathways that are used and eliminating neuron pathways that are unused. Children are born with an excess of neurons; when a child has positive experiences, these neuron pathways are stored and strengthened. Synaptic pruning, as Steinberg (2011) has suggested, “transforms an unwieldy network of small pathways into a better organized system of superhighways” (p. 42). This makes the brain more efficient and improves functioning. After synaptic pruning, formed synapses are covered and insulated by myelin, which protects the brain and is released in stages depending on age, environment, and genetics. The more extensive the myelin coverage, the faster the brain works and information flows (Roaten & Roaten, 2012, p. 5). The prefrontal cortex, the area of the brain responsible for abstract thinking, language, and decision making, is the last part of the brain to receive myelin production (Feinstein, 2009, p. 11). Jetha and Segalowitz (2012) have emphasized that risk taking behavior is a result of an imbalance when the “maturation of networks involved in the experience of emotion occurs earlier than those involved in the executive functions of planning and control” (Jetha & Segalowitz, 2012, p. 2090). Essentially, self-regulation ability has not developed fully in adolescents, which can lead to risk taking behaviors.

According to Dr. Frances Jensen, a Pediatric Neurologist at Children’s Hospital, Boston, an adolescent’s frontal lobes are not fully connected, resulting in slower nerve cell communication (Jensen, 2010). During an NPR interview with Jensen, Richard Knox summarized this phenomenon by stating that “teenagers don’t have as much of the fatty coating, called myelin, that adult brains have in this area [. . .] think of it as insulation on an electrical wire, nerves need myelin for nerve signals to flow freely”

(Jensen, 2010). The prefrontal cortex is the area of the brain that controls planning, organizing, insight, reasoning, and logic, balances risks and rewards, and controls mood regulation. Moreover, the prefrontal cortex does not fully mature until age 24 or 25, well after the age at which the average individual graduates from college (around age 22).

Roaten and Roaten (2012) noted that: “In the area known as the corpus callosum, it was found that the neural fibers connecting the two hemispheres of the brain underwent significant growth during adolescence and into the mid-twenties” (p. 4). This means that adolescents access their frontal lobe, the area responsible for decision making, more slowly. Adolescents tend to rely more on their amygdala when confronted with decision making, as the prefrontal cortex is not the fastest neuron pathway in their brains; as such, they are more likely to have an emotional or instinctual reaction, which can explain poor decision making and emotional responses during adolescence (Jensen, 2010, p.1). Roaten and Roaten (2012) also suggested that “Insight requires a fully connected prefrontal cortex; thinking about the impact of one’s behavior on others requires insight” (p. 5), which can explain why adolescents can experience difficulty considering impacts before they speak or act. Knox stated that another significant difference between child and adolescent brains, compared to adults, is their excitability. Children and adolescents are built to respond to everything, which facilitates a quick learning process. Jensen (2010) therefore suggested that addiction has been shown to be, essentially, a form of learning, which means that drinking is more habit forming when it begins during adolescence.

Myelinated axons form the white matter in the cortex, while gray matter is made up of cell bodies. Male brains tend to have higher proportions of white matter,

associated with spatial and numerical processing, while females have higher proportions of gray matter, associated with verbal skill and ability to multi-task. While teens have a high capacity for learning and memorizing new information, the late development of the cortex means they can experience difficulty with deliberative thought, such as prioritizing tasks, organizing information, and expressing their feelings effectively. The late development of the cerebellum also creates difficulty with interpreting emotional signals, from themselves as well as from others: for instance, confusing anger with sadness (Chamberlain, 2008).

Chemical changes in the brain during development also affect behavior. Serotonin and dopamine levels vary more in adolescents than adults. Taking risks can elevate levels of dopamine: the “feel-good” chemical. When combined with the other brain changes adolescents experience, this creates a “high” that can encourage risk-taking behaviors. Recent research has indicated that, during the years of adolescence and early adulthood, individuals experience a draw to sensation seeking activities, where “pursuing and taking risks in order to experience a variety of sensations” is influenced by a chemical message in the brain urging the individual to seek novel and exciting experiences (Chamberlain, 2008; Rosenblitt, Soler, Johnson, & Quadagno, 2001).

Risky Behaviors in College Students

College students and adolescent’s consumption of alcohol has been rising for many years and continuous to be a concern. According to Johnston (2003), 28.6 percent of 12th graders and 40.1 percent of college students self-reported drinking 5 or more consecutive alcoholic beverages during the two weeks prior to taking the survey. Consuming alcohol to this degree, also called binge drinking, leads adolescents and

college students to risk-taking behaviors (Windle, 2003). The results of this study have significant implications for colleges and universities across the nation. Each year, more than 1,800 students die from alcohol related issues and over 600,000 students are injured in drinking related incidents (McMurtrie, 2014). According to the National Institute for Alcohol Abuse and Alcoholism, 25% of students report that their academic performance suffered as a result of drinking (NIA, 2015). Additionally, 696,000 college students report being assaulted by another student who had been drinking, and over 97,000 students report alcohol related sexual assaults (NIA, 2015). Nationally, 70% of college students report engaging in binge drinking (CDC, 2012). First-year students are exceptionally vulnerable in the first six weeks of their first semester (NIA, 2015).

An easy way to assess risk increase in society is to evaluate mortality and injury statistics. Addressing overall deaths of adolescents in the United States and Canada, Willoughby et al. (2013) reported an increase from an average of 5.85 per 100,000 between the ages of 10-14 to 36 per 100,000 between the ages of 15-19, according to studies conducted in 2005 and 2009. Though this increase appears significant, the survival rate of high school students in these two countries is very impressive: 99.96%. The death rate continues to increase during young adulthood as well, indicating that the increase is not unique to the period of adolescence. Similarly, unintentional injuries are also indicative of risky behavior. In 2005 in the US, the rate of injuries requiring hospital treatment among 10-14-year-olds was 11.23%, compared to 14.49% for 15-19-year-olds. This is the same age range at which many adolescents are first exposed to organized sports, driving, and employment; these factors are all potentially hazardous, but not the kind of risk factors that society frowns upon (2013).

Given these numbers, it is clear that most individuals manage to survive adolescence without any major problems; therefore, it is important not to exaggerate the health risks they face (as cited in Cross, et al., 2017).

Conclusion

Based on all of the benefits of adventure education and ropes courses, it is likely that adolescents would benefit from participating in such programs. The soft skills developed through participation in adventure education, such as communication, working in a group, creativity, and taking initiative, are exactly what employers are looking for and are much less tangible than the hard skills adolescents learn every day in school. Risk-taking is inevitable for young adults and part of the maturation process, and young adults need a better outlet than drugs, alcohol, and other high-risk behaviors. Challenge courses are a desirable outlet.

CHAPTER 3

METHODOLOGY

Purpose

The purpose of this study was to explore the three main areas of adolescent risk taking—substance abuse, reckless driving, and sexual promiscuity—and ascertain whether a semester-long class taught on a challenge ropes course, which focused on personal and social responsibility, mindfulness, and social justice, would have mitigating effects on any of the identified areas. Utilizing a challenge course as the treatment in this study was an intentional decision, based on the fact that interplay between risk and personal development is part of challenge course programs.

This study consisted of a pre-test post-test design; the participants in both the control group and the treatment group completed a 10-question survey about their habits in the following areas: substance abuse, reckless driving, and sexual promiscuity.

Participants

The participants in this study self-selected from two different courses taught in the Kinesiology Department (KINE) at the California State University, Chico (CSUC). The control group comprised students enrolled in KINE 247 World Sport and Games and the treatment group comprised students enrolled in KINE 222 Challenge Quest. Both classes are electives that enroll first-year students to seniors. KINE 222 Challenge Quest is a three-credit course taught exclusively on the university's challenge ropes course. The class meets for two hours twice per week for 16 weeks, which equates to 64 contact hours. The purpose of the class is to teach personal and social responsibility through

adventure education, using experiential education teaching methods (Chico State, 2016). KINE 247 World Sport and Games is a three-credit course and has the same meeting pattern as KINE 222. The focus of KINE 247 is to develop an understanding of how sports are integrated into cultures around the world (Chico State, 2016).

The control group included 84 students (71% female; 29% male) and the treatment group included 33 students (48% female; 52% male), with ages ranging from 18-26. The average age of the control group is 19 years old, and the average age of the treatment group is 20 years old. The researcher collected pre-test data during the first 20 minutes of class on the first day after the university drop date had passed. The researcher sent the link for the survey to the professor of each class, who then provided it to the students by email. Participants filled out the online survey through SurveyMonkey and the data was collected electronically. At the end of the semester, during the week prior to final exams, the researcher collected post-test data by administering the survey again in the same manner.

Instrument

The instrument used in this study was a modification of the Youth Risk Behavior Surveillance System (YRBSS), developed by the Center for the Disease Control and Prevention (CDC). The CDC developed the YRBSS to monitor the trends of “six priority health-risk behaviors among youth” (CDC, 2004, p. 3). The six categories include behaviors contributing to unintentional injuries and violence, tobacco use, alcohol and other drug use, sexual behaviors, dietary behaviors, and physical habits. While all six categories are worth investigation, the purpose of the present study was to evaluate the risk-taking behaviors that cause unintentional injuries common on many college

campuses through driving drunk habits, sexual experiences, binge drinking, and other drug use. Binge drinking is defined as heavy episodic drinking with the intention of becoming intoxicated by heavy alcohol consumption of alcohol over a short period of time (Renaud, 2001). While a similar definition of excessive marijuana use does not exist, for the purposes of this study, using marijuana more than five times in 30 days was considered risky behavior.

The researcher selected 10 questions to address these areas of interest. There were no significant differences in the groups prior to treatment (data not provided). After the collection of the initial data, the researcher compared the two groups using a Pearson Chi-squared test to ascertain whether the control group and treatment group were similar. Chi-squared tests are used to indicate goodness of fit, homogeneity, and independence. The researcher proposed a null hypothesis for each area of risk (Glass & Hopkins, 1995).

CHAPTER IV

RESULTS

After the collection of the initial data, the researcher compared the two groups using a Pearson Chi-squared test to ascertain whether the control group and treatment group were similar. There were no significant differences in the groups prior to treatment. The generalized results after treatment are:

- Reckless driving: no change with either the control group or treatment group
- Sexual behavior: no change with either the control group or treatment group
- Binge drinking: significant decrease in treatment group, no change in control group
- Marijuana use: significant decrease in treatment group, no change in control group

Table 1 compares the pre-test and the post-test with the treatment group in relation to binge drinking. The contingency table provides the following information: the observed cell totals, (the expected cell totals), and [the chi-square statistic for each cell].

Table 1

Binge Drinking

	No Drinking or Social Drinking	Binge Drinking	Marginal Row Totals
Pre-test	11 (16) [1.56]	55 (50) [0.5]	66
Post test	21 (16) [1.56]	45 (50) [0.5]	66
Marginal Column Totals	32	100	132 (Grand Total)

Note. The chi-square statistic is 4.125. The p -value is .042254. This result is significant at $p < .05$.

Table 2 compares the pre-test and post-test of the treatment group as it relates to marijuana use. The contingency table provides the following information: the observed cell totals, (the expected cell totals), and [the chi-square statistic for each cell].

Table 2

Marijuana Use

	Little or no marijuana use	Heavy marijuana use	Marginal Row Totals
Pre-test	10 (15.5) [1.95]	23 (17.5) [1.73]	33
Post test	21 (15.5) [1.95]	12 (17.5) [1.73]	33
Marginal Column Totals	31	35	66 (Grand Total)

Note. The chi-square statistic is 7.3604. The p -value is .006668. This result is significant at $p < .05$.

The Null Hypothesis one was rejected, there is a significant difference in binge drinking habits between the control group and treatment group.

The Null Hypothesis two was accepted, there was not be a significant difference in driving and drinking habits among the control group and treatment group.

The Null Hypothesis three was rejected, there was a significant difference in the marijuana use among the control group and the treatment group.

The Null Hypothesis four was accepted, there was not be a significant difference in the illicit drug use among the control group and the treatment group.

The Null Hypothesis five was accepted, there was will not be a significant difference in pregnancy prevention methods among the control group and the treatment group.

The Null Hypothesis six was accepted, there was not be a significant difference in the number of sexual partners reported by the control group and the treatment group.

CHAPTER V

CONCLUSIONS AND RECCOMENDATIONS

Conclusions

The findings in this study mirror those of a similar study conducted by Conroy (2011). The main difference between the two studies is that, in the present study, the researcher used a pre-test post-test design and compared the control group with the treatment group to ascertain any pre-existing difference between the two groups. Conroy's (2011) study was unique in that it had a larger treatment group of participants in similar courses taught on two different campuses. Conroy used classes on the University of Northern Colorado Campus that were similar in design, structure, and curriculum to those addressed in the present study.

Successful and award-winning intervention programs are multi-faceted and have comprehensive education and prevention elements (USDOE, 2008). A significant ropes course experience with a focus on personal and social responsibility, mindfulness, and sense of belonging is a significant addition to the existing measures used to prevent drug and alcohol abuse. A significant experience requires 30-45 contact hours, rather than a one- to two-hour experience. Requiring all first-year students to participate in a ropes course class during their first six weeks at university could be an extremely positive intervention during that critical period.

The curriculum for KINE 222 focuses on personal and social responsibility, mindfulness, and sense of belonging. While the curriculum never specifically focuses on drinking, drug use, or reckless behavior, participation in the class produced a significant

reduction in binge drinking and marijuana use. A required ropes course class as a general education elective would be a straightforward way for universities to mitigate some of the expenses and tragedy of alcohol and drug abuse.

Recommendations

Based on the results of the present study, it is believed that adolescent individuals should be presented with the opportunity to participate in Outdoor Education or a challenge ropes course as an outlet for positive risk taking. The benefits of participation are not limited to an outlet for positive risk taking and reducing other more harmful risk taking behaviors. Further, based on the findings of the literature review, the skills gained from participation in such programming has the potential to greatly enhance participants' overall success as they transition into adulthood.

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APPENDIX A

APPENDIX A

The Effects Of A Challenge Course Program On Harmful Risk Taking Behaviors Among College Students, A Continued Study

Survey Questions

1. How old are you?
 - a. 18years
 - b. 19years
 - c. 20years
 - d. 21years
 - e. 22years or older

2. What is your sex?
 - a. Male
 - b. Female

3. During the past 30 days, how many times did you **ride** in a car or other vehicle **driven by someone who had been drinking alcohol**?
 - a. 0 times
 - b. 1 time
 - c. 2 or 3 times
 - d. 4 or 5 times
 - e. 6 or more times

4. During the past 30 days, how many times did you **drive** a car or other vehicle **when you had been drinking alcohol**?
 - a. I did not drive a car or other vehicle during the past 30 days
 - b. 0 times
 - c. 1 time
 - d. 2 or 3 times
 - e. 4 or 5 times
 - f. 6 or more times

5. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?
 - a. 0 days
 - b. 1 day
 - c. 2 days
 - d. 3 to 5 days
 - e. 6 to 9 days
 - f. 10 to 19 days
 - g. 20 or more days

6. During the past 30 days, what is the largest number of alcoholic drinks you had in a row, that is, within a couple of hours?
 - a. I did not drink alcohol during the past 30 days
 - b. 1 or 2 drinks
 - c. 3 drinks
 - d. 4 drinks
 - e. 5 drinks
 - f. 6 or 7 drinks
 - g. 8 or 9 drinks
 - h. 10 or more drinks

7. During your life how many times have you used marijuana?
 - a. 0 times
 - b. 1 or 2 times
 - c. 3 to 9 times
 - d. 10 to 19 times
 - e. 20 to 39 times
 - f. 40 to 99 times
 - g. 100 or more times

8. How old were you when you tried marijuana for the first time?
 - a. I have never tried marijuana
 - b. 8 years old or younger
 - c. 9 or 10 years old
 - d. 11 or 12 years old
 - e. 13 or 14 years old
 - f. 15 or 16 years old
 - g. 17 years old or older

9. During the past 30 days, how many times did you use marijuana?
 - a. 0 times
 - b. 1 or 2 times
 - c. 3 to 9 times
 - d. 10 to 19 times
 - e. 20 to 39 times
 - f. 40 or more times

10. During the past 3 months, with how many people did you have sexual intercourse?
 - a. I have never had sexual intercourse
 - b. I have had sexual intercourse, but not during the past 3 months
 - c. 1 person
 - d. 2 people
 - e. 3 people
 - f. 4 people
 - g. 5 people

- h. 6 or more people
11. Did you drink alcohol or use drugs before you had sexual intercourse the **last time**?
- I have never had sexual intercourse
- a. Yes
 - b. No
12. The **last time** you had sexual intercourse, what **one** method did you or your partner use to **prevent pregnancy**? (Select only **one** response.)
- a. I have never had sexual intercourse
 - b. No method was used to prevent pregnancy
 - c. Birth control pills
 - d. Condoms
 - e. An IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon)
 - f. A shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing)
 - g. Withdrawal or some other method
 - h. Not sure

APPENDIX B

APPENDIX B

California State University, Chico
Chico, California 95929-0875
Office of Graduate Studies
530-898-6880
Fax: 530-898-3342
www.csuchico.edu/graduatestudies



December 18, 2014

Bridget Moore
174 Grove Way
Hayward, CA 94541



Dear Bridget Moore,

As the Chair of the Campus Institutional Review Board, I have determined that your research proposal entitled "THE EFFECTS OF A CHALLENGE COURSE PROGRAM ON HARMFUL RISK TAKING BEHAVIORS AMONG COLLEGE STUDENTS, A CONTINUED STUDY" is exempt from full committee review. This clearance allows you to proceed with your study.

I do ask that you notify our office should there be any further modifications to, or complications arising from or within, the study. In addition, should this project continue longer than the authorized date, you will need to apply for an extension from our office. When your data collection is complete, you will need to turn in the attached Post Data Collection Report for final approval. Students should be aware that failure to comply with any HSRC requirements will delay graduation. If you should have any questions regarding this clearance, please do not hesitate to contact me.

Sincerely,

John Mahoney, Ph.D., Chair
Human Subjects in Research Committee

Attachment: Post Data Collection Report

APPENDIX C

APPENDIX C

2016237

HUMAN SUBJECTS IN REVIEW COMMITTEE
Post Data Collection Questionnaire

Under Federal law relating to the protection of Human Subjects, this report is to be completed by each Principal Investigator at the end of data collection.

Please return to: Rosemary White, HSRC Assistant
Office of Graduate Studies
Student Services Center (SSC), Room 460
CSU, Chico
Chico, CA 95929-0875

Or Fax to: Rosemary White, 530-898-3342

Name: Bridget Terreri Proshok Chico State ID# 000078326

Phone(s) 707-478-8797 Email: brigeetat36@gmail.com

Faculty Advisor name (if student): Reid Cross Phone 5220

College/Department: IDST

Title of Project: Effects of Challenge Course Program on Harmful Risk-taking behaviors among College Students - Continued Study

Date application was approved (mo/yr.): 01/2015 Date collection complete (mo/yr.): 12/2016

How many subjects were recruited? 178 How many subjects actually completed the project? 117

*HARM--Did subjects have severe reactions or extreme emotional response? NO

If yes, please attach a detailed explanation: _____

Your signature: Bridget Terreri Proshok Date: 7/18/17

*Final clearance will not be granted without a complete answer to this question.

Approved By: [Signature] Date: 8/3/17
John Mahoney, Chair

VERY IMPORTANT: If you will or have used this research in your project or thesis you are required to provide a copy of this form (with John Mahoney's signature in place) to your graduate committee.

Do you want a photo copy of this form emailed to you? yes
If yes, provide email address: brigeetat36@gmail.com or bterreri@mail.csuchico.edu