

Outdoor Education Opportunities for Middle School Students:  
Academic and Social Impacts of Adventure Programs

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### Abstract

This study examines components of outdoor adventure programs for middle school students, using a school with a successful program as a model. Outdoor education is often left out of these years for financial and safety reasons, however the benefits of adventure programs are both measurable and profound to self-concept, confidence, identity growth, and education. Connections between components are not well known, representing a gap in current research. Sub-analysis between trail groups of students on two middle school programs is conducted using participant surveys before and after the programs to identify components that may lead to positive and negative outcomes. This study shows that the components of outdoor education work to support or hinder the adventure process itself, which is most significant to the outcomes of the program for a participant. A new pyramidal model for the process of outdoor education may be useful in understanding the connections in Outdoor Education.

## Chapter 1 Introduction

“I came home strong.”

Maria had once been an outgoing, social girl with aspirations of becoming a professional gymnast. Those dreams changed when Maria’s older sister had a tragic diving accident that left her paralyzed from the waist down and only limited movement in her arms and hands. The whole school, except a few new students, knew what happened to Maria’s sister and rallied around her family, but no one knew what life was like for Maria, who once dreamt of leaving the shadow of her older sibling. No one knew until one night around a campfire in the Yosemite backcountry.

Maria was on her seventh grade outdoor education program, a backpacking trip through the High Country above Tioga Road. I was there, too, filling in my first official duty at a new school, chaperoning ten students with another teacher and two wilderness instructors. It was our second night out in the backcountry after a day that took us to an elevation of over ten thousand feet, pristine lakes, and sweeping vistas well worth the climb. Waves of enthusiasm and confidence riddled with exhaustion swept through our weary wards as we finished dinner around a campfire. Things were quiet and reflective, and the instructors asked them to share challenges from the day that they overcame.

Responses varied from the grueling switchbacks and drinking iodine water to thinking up trail songs and avoiding a best friend’s fart. But that opened the door for a more thoughtful exercise. We shared the things we accomplished and the beauty we saw in nature. Then one of the instructors asked a serious question about challenges in our lives and how we become strong to face the things we do back at home, and she invited everyone to share a challenge they have that makes them strong and beautiful. Everyone shared something thoughtful but fairly typical

for their ages: preparing for a bat mitzvah, getting on in school, fitting in as ‘the new kid.’ Then it came to Maria.

After two years of silence, Maria spoke about her sister. She spoke of the challenges her sister faces, and how happy she was that she could wiggle her toes again. She spoke about hope. Then she spoke about her own challenges, how her sister meant the world to her, and how she has to give things up for her. She gave up attending a championship competition in gymnastics to take care of her sister. She had to avoid meets that were too far so they could still drive her sister to them. She missed friends’ birthday parties, trips to the movies, and hanging out time if her parents were busy with her sister because they would not be able to drive her. Her life, as she put it, was on hold whether she wanted it or not. She had been afraid to say it. She opened up about these challenges, and concluded by saying that out on the trail, she realized she could go home and face those challenges and embrace her sister, because now she knew she could face anything. God had made the world beautiful, and no amount of pain or challenge would stop her from having a relationship just as beautiful with her sister. Her life wasn’t on hold. She was doing what she loved.

Our once merry band was silent for some time. A few students shed tears. Somehow the experiences we had in the backcountry sparked a dramatic change in Maria, enough to bare her soul to her teachers, strangers, and friends whose opinion she was so very worried about. The group rallied around her to support her, and when we returned, Maria blossomed into a young woman. By the end of the year she was outgoing and no longer sullen. By eighth grade she had made it into a private high school of her choice and read a closing speech with her sister in attendance. As Maria put it in her post trip reflection, “I came home strong.”

Looking back on Maria’s experience which I was lucky to witness, I saw how pivotal an

experience outdoor education programs could be for a student in the awkward middle school years when young teens and pre-teens are struggling for identity in a world that has both ramped up and turned upside down for many. By no means can every experience be like Maria's epiphany, but certainly outdoor programs such as the one we were on could be a positive and affirming experience for youth her age. Yet, in speaking with program coordinators in 2010, out of the two hundred odd schools they run programs for, ours was the only school that currently backpacked into the wilderness. Even for larger and non-school based outdoor education groups, pickings are slim. For example, take Outward Bound, a pivotal program provider. Their wilderness offerings for 2011 include over ninety programs for high school aged teens across the country... and yet only sixteen programs for youth. (Outward Bound, 2011) Middle school aged youth have far fewer choices in challenging outdoor education when they are at a time when they could benefit highly from the experience.

### Statement of Problem

While outdoor education has many positive benefits that have been researched, there is a gap in outdoor education for middle school youth, especially in adventure or challenge programs that feature heightened experiences like wilderness backpacking, rock climbing, or rafting, which may be seen as too risky for youth, too expensive to implement, too time intensive, and too hard to reasonably travel to. In California, many outdoor schools focus on residential, cabin camping, for 5<sup>th</sup> and 6<sup>th</sup> grades - whichever is the highest elementary grade. There are many private adventure programs for high school teens, but few in comparison are available for youth. Similarly, there is a lack of knowledge about the processes that occur during outdoor education programs that produce positive observable outcomes. In short, there is little written, designed, or

implemented in the way of school group adventure programs for middle school youth.

### Purpose Statement

This study examines the particular benefits and disadvantages of adventure styled outdoor education programs for middle school aged youth. This study analyzes several components that have been found by previous research to be connected to positive outcomes in outdoor education. This is accomplished by performing a sub-analysis of the experiences and characteristics of students on two such trips at a school with established outdoor adventure education programs.

### Hypothesis

By surveying students both before and after participation in an outdoor adventure program, I hypothesize that there will be noticeable changes in their responses to questions about esteem and confidence in life and academic pursuits, demonstrating benefits from demanding outdoor programs for youth, and that these changes are likely to be tied to the perceived quality of naturalists, activities, and challenging but achievable goals. In other terms, there is an optimum challenge level for each individual and I hypothesize that the groups with the most noticeable growth after the program will be the ones that hit and maintained the optimum challenge level without surpassing it.

### Theoretical Rationale

In seeking to understand the effect the outdoors has on us, especially the effects of outdoor education, there are many theories that apply from a variety of different fields of study. It is primarily rooted in developmental and educational theory. In many ways, outdoor education



theory is considered a black box theory, meaning that while we can define the input and output of the field, we do not know the inner workings of it; we can not see inside the box of outdoor education to know how or why it has the effects that it does (Ewert, 1983). Operating theory surrounding outdoor education is an amalgamation that seeks to pin down the unknown process that occurs in the black box.

Outdoor education has drawn heavily on experiential learning theories from the field of education to help explain the process in the black box. As outdoor programs are often disassociated from classroom learning and involve hands on tasks, borrowing from experiential studies is a logical source. Experiential education theory holds that individuals can learn best in three part situations where they can plan (for) an experience, have that experience, and then review the experience (Dewey, 1938). This engages student learning for hands-on tasks and activities where the experience of being in those activities will lead to greater growth and learning. Participating in the surrounding steps of planning and reviewing allow students to engage in predicting before the experience and being prepared for it on one end and reflecting and processing their learning on the other. For outdoor education programs, a student's participation in the provided outdoor experiences, in being significantly different from day to day classroom activities, can create a heightened period for learning so long as the structure allows for proper planning and review periods.

Dewey also proposed that education be filled with experiences that help foster learning how to live, especially related to the group and democratic ideals so that an individual is prepared for the future (Dewey, 1897). Cooperative programs fulfill a niche or provide a focus for acquiring tools and strategies to work with others and function in society. In *Experience and Nature*, Dewey stresses that human existence is based of continuous streams of experiences

between other humans and the environment in which they live in (Dewey, 1925). Returning human interaction to the outdoor world would be to put a group of humans in the most natural of states to practice interaction that can then be brought back to society for the better. What is natural for humans should not be left out of the educational process.

In more recent years, Gardner struck upon this theme and proposed a new form of intelligence called naturalistic intelligence as an edit to his theory of multiple forms of intelligence that individuals possess. (Gardner, 1999) In his original theory, individuals may have strengths in certain intelligences which has been used since in personality typing, but practice and attention to any other form of intelligence could increase a person's ability in that field; educators should encourage (and differentiate for) multiple forms of learning (Gardner, 1999). The newly proposed naturalistic intelligence reflects upon our human connection with the environment and intuiting or understanding natural phenomena on a level that was not expressed in the original theory. The theory of multiple intelligences had intelligences to connect individual to self, intrapersonal, between individuals, interpersonal, but did not have a connection between an individual and their environment. This new intelligence fills that gap. That there was a gap in the first place suggests that we, as humans, overlook our connection to the environment and stifle this form of intelligence; the naturalistic side of the average person is in need of recognition and growth.

These theories support the inclusion of educational experiences in the outdoors for all students as a way to promote their development as individuals as well as members of a greater human society. Experiential learning is a part of human nature and it occurs when humans are in the natural environment. Returning to the environment for purposeful learning would be effective in achieving learning goals. This effectiveness is the outcome of the process in the

black box. The effectiveness of this black box process is articulated using theories of stress, optimal arousal, and group development.

Group development theory holds that the process that occurs benefits from social support from the group, as guided by a facilitator or instructor. (Hill & Grunner, 1973) The group develops over time, going through different stages of growth, though Hill and Grunner (1973) noted that there were over 100 theories as to what those stages were at the time of writing. Nevertheless, the dynamic nature of small groups has been a large key in providing beneficial outdoor adventure experiences (McKenzie, 2009).

The process is also thought to benefit from the stress of challenges that push participants to states of optimal arousal - a zone that the participants can function best in - and this in turn sparks greater motivation to succeed (Hebb, 1955). Programs and activities that are challenging to provide some stress, but not over challenging to provoke anxiety, provide tasks that participants can succeed in and learn from (Neill, 2010). Outdoor adventure education provides more opportunities for appropriately chosen, challenging tasks than camp/cabin based programs (Outward Bound, 2011).

Returning, or venturing out into the outdoors - into the wilderness in particular- is also reinforced by popularized accounts and philosophical writings about nature, creating a philosophical rationale for education about and in the outdoors. The works of Comenius, James, Leopold, Rousseau, and Pestalozzi have served as inspiration for those involved in outdoor education (Neill, 2010). Of particular note are the writings of John Muir, which have become popular sources to inspire a love of nature in others. Muir advocated the preservation of the natural environment, the spiritual renewal that happens when one returns to nature, and the importance of educating others, child and adult alike, about the natural world at times when city-

dwellers are disconnected from it. Wrote Muir: “Everybody needs beauty as well as bread, places to play in and pray in, where Nature may heal and cheer and give strength to body and soul alike. This natural-beauty hunger is made manifest in the little window-sill gardens of the poor, though perhaps only a geranium in a broken cup...” (Muir, 1912, p. 256).

Developmental theory can also be used to show why education about the outdoors and the environment would have particular strengths for students who are youth. Here youth refers to adolescents who are roughly between the ages of eleven and thirteen, which follows typical middle school ages. Individuals may reach adolescence at varying times, however this range of ages encompasses the start of pubescent changes for most humans and is thus a very particular and changeable time in our life cycle. Early adolescence shows the beginnings of abstract thinking and conceptualization, including hypothetical situations. (Piaget, 1983). The adolescent brain is in a stage of both intense myelination and intense pruning of neurological connections, streamlining the brain for adulthood (Durstun, 2001). The biological changes allow for the growth in complex thought, and this in turn leads to awakened questioning. Adolescence becomes a period marked by the struggle for identity in the midst of role confusion from surrounding sources (Erikson, 1968). Early adolescence is a key time in our development as human beings where we begin to question and try to answer where we fit in to our surrounding world, a delicate and precarious moment in our development. Self-affirming experiences can then be powerful steps in assuring confidence in identity instead of being caught in lasting confusion.

This is where outdoor education can step in for youth: in providing challenging experiences in small group settings, an outdoor program could fulfill the need for positive self-affirmation at a key moment in an individual’s life in context of society. When there is also a

need to incorporate the natural world and the environment into our lives as well, providing outdoor education experiences that are challenging is appropriate to this stage in development as they would be providing self-affirmation in context of both the group and in context of the natural world. Challenging outdoor education for youth would thus serve dual purposes.

### Assumptions

I do have certain personal assumptions and beliefs that could potentially influence my work. Because my own personal experiences led to this line of study, I may take my personal observations as the norm when it may be just the opposite. This study documents experiences across two grade levels, and their experiences may be quite varied. Still I assume that outdoor education is beneficial to youth and can be documented in a substantial and meaningful way, an assumption that is supported by the body of literature on the subject, and that the implications from their experiences can be shared on a universal level.

I believe that well conducted programs can lead to the things I have witnessed in my own experiences in others. Outdoor programs (let alone adventure programs!) were options that were not available in my own personal middle school history in the 1990s and the reasons for their absence may be widespread or long lasting.

In addition, focuses on high stakes testing and funding crises leading to shortening of extracurricular programs, including outdoor education, despite the growth of environmental and global awareness movements as nature and the outdoors is often viewed as something that is extracurricular when it could very well be integrated into curricula. There is likely a disbelief in the feasibility or viability of outdoor programs because of location, students, and background and

poor knowledge about programs that include solutions such as financial aid, safety precautions, and customizability for different groups.

### Background and Need

***Importance of Getting Out in Nature.*** The theoretical rationale behind outdoor education includes both theory and philosophy that is supportive of having greater exposure to the natural environment for youth and adults alike. Since the time of John Muir, this has developed into an expressed need for nature in the lives of modern children who are seen as more disassociated from the natural world than previous generations; children are more plugged in to artifice in the forms of computers, video games, texting and iPods with parents that, while concerned, are not as conscious about taking children to outdoor activities (Louv, 2005). There is now popularized concern about introducing children to the natural environment for the intrinsic value of the relationship, which is also seen at risk of being lost with environmental distraction and greater awareness of climate change (Louv, 2005).

***Biological Need.*** The biophilia hypothesis has helped explain this perception as a need. Biophilia states that there is an intrinsic and instinctive bond between humans and other living systems, whether other animals, plants, or other forms of life (Wilson, 1984). Immersion in the natural environment would enhance this natural bond to better leave an impact on the participants and strengthen their interpersonal interactions. This would be especially pertinent for adolescents who are naturally seeking their place within society and have changing and developing interactions with their peers and others.

***Need for Adventure.*** The process of outdoor adventure education enhances the need for challenging activities over mundane tasks. While the process of outdoor education is not well

understood, (Ewert, 1986, McKenzie 2009) there are models that have helped create a framework for conceptualizing outdoor adventure education. Because Outward Bound has been at the forefront of outdoor education in the United States, Hahn's process model can be seen as both a cornerstone of adventure programs and as a demonstration of the need for adventure programs for outdoor education.

Outward Bound's process model includes multiple characteristics or factors that can influence the outcomes of a program, many of which can be proscribed and controlled to better produce that outcome (Neill, 2010). A learner or participant in a program can be placed into proscribed physical and social environments, given a known set of problem solving tasks which lead to stress or dissonance that the participant must adapt to or overcome (Walsh & Gollins, 1976). Overcoming a challenge leads to mastery of that challenge with new skills, and this in turn leads to a recognition of meaning from the challenge and overall experience (Walsh and Gollins, 1976, Ewert 1986). Therefore facing series of thoughtful challenges not only enhances learning but also enhances personal reflection and awareness of the self. Outdoor Adventure Education is poised for such opportunities as it can incorporate those goals in a driven backwards design.

***Experiential Learning.*** This process greatly fits Dewey's learning cycles (1938) in experiential learning theory. Schoel (1988) further identified this process as a wave where stress and emotion crest during activities. If used to effectively, could help counsel youth (Schoel, 1988). The issue at hand is that while there is this overarching theory of process, how that translates to real world characteristics is ill defined at best: there is a noted gap in the literature (McKenzie, 2009) in terms of illustrating how aspects of this process of outdoor education lead to positive and desirable outcomes.

***Gap in the Research.*** This gap is further explored in the review of the literature. It is important to note here that while outdoor programs have been compared to each other in meta-analysis, (Hattie et al, 1997) little has been done in terms of sub-analysis. Recent trends have been to gather qualitative data in case studies (ex: Dyson (1995), Meyer and Wegner (1998), and Witman (1995)) but there is little to connect different characteristics of a program to its outcomes. Thus there is a specific need within the field to study and the inner workings of a program that leads to desirable outcomes to better understand the nature of the process that occurs during outdoor adventure education.



## Chapter 2 Review of the Literature

### Introduction

Literature on the subject of outdoor education is varied and diverse in the wide range of locations and populations studied. Despite this variety, the body of literature points to the study of outcomes resulting from outdoor education programs rather than the processes within the programs that create those observed outcomes. Not only does this reinforce the idea of outdoor education as a black box in which the inner processes are unobservable and not well understood, it also provides a route to understanding why this black box exists: the outcomes, which are more observable, and therefore understandable, are what studies continue to be conducted on while the processes that are not well understood simply have not been studied to the same degree, despite clamors within the field to do so (McKenzie, 2009; Neill, 2010). This is endemic outdoor education as a whole, broad field rather than specific subsets such as differing locations, age groups, or types of programs. Still, the literature provides a broad backdrop on the history and development of outdoor education and emerging growth on adventure programs.

### Historical Context

***European Origins.*** Outdoor education programs have a long history in the United States with traditions that originate largely from European outdoor traditions. During the 19th century in Europe there was a rise in nature-based sports such as mountaineering, through-hiking, and snow sports that coincided with a growth in masculine discourses about the outdoors that played particularly strong roles in Norway and the U.K. in particular (Humberstone & Pedersen, 2001). This combination provided a mechanism to prove oneself in areas previously deemed

inaccessible. In the United Kingdom, these trends grew into upper class traditions that were character building adventures of exploration and discovery that greatly affected the western world (Roberts, 1974).

*Development in the United States.* These new traditions grew to include both girls and lower classes as the outdoors movement developed into scouting and guiding programs that span from childhood through adolescence and into the teenage years (Cook, 1999). These programs would then find footholds in the United States that continue today; the Boy Scouts of America (BSA) still hold character building, responsibility, and fitness as key goals that have lasted since 1910 (BSA, 2011). The popularity of scouting helped to popularize outdoor activities for youth as positive endeavors that could be accessed by greater portions of the population. The Boy Scouts of America, for example, hit a million members in 1925 and now serves over 114 million with an estimated 1.1 million youth (ages 10-18) participating in camps in 2009 (BSA, 2011). Thus there is a popular trend over the past century to provide outdoor programs for youth and teens that include adventure activities.

Movement continued with the development of Outward Bound, a movement of outdoor schools developed by Hahn first in the U.K. but later in countries around the world. The development of Outward Bound can be seen in a parallel time frame to the scouting movements. Hahn's ideas for Outward Bound can be seen as a merger of ideas from his native Germany and adoptive England: on the one hand Hahn is fueled by educational movements from within the U.K., and on the other Weimar German pedagogy which exalted the human form triumphant in the outdoors, (Humberstone & Pedersen, 2001) ideas that would eventually fuel wartime fascist aesthetics. Hahn's Outward Bound Movement is considered the origin of modern outdoor adventure education, and the first American Outward Bound School opened in 1961, well after

scouting traditions mainstreamed outdoor programs for youth in America (Hattie, Marsh, Neill, Richards, 1997). Thus the Outward Bound movement found a receptive audience but is its own distinct movement apart from scouting with far different goals, populations, and design structure, focusing on wilderness expeditions, customizing for special groups, and schools/community centers (Outward Bound, 2011). The growth of Outward Bound in similar countries around the world (example: Australia) is more aligned with the growth of environmental movements and educational pedagogy, in particular experiential learning theories (Brookes, 2002 and Neill, 2011). Outward Bound now serves an estimated 70,000 students and teachers annually, (OB, 2011) nearly double the number of youth and teens in that participate in the BSA's comparable high-adventure camps and activities (BSA, 2011). Now there is an acceptance of outdoor education as beneficial for environmental and educational purposes as well as the character building principles for children, adolescents, and teens.

***From Past to Present Trends.*** Moral or intrinsic values that support experiences in the outdoors can be traced as far back as Plato (Hattie et al, 1997) to more recent discourses during the previous century's growth of outdoor programs such as the writings of Muir or Louv. Outdoor adventure programs thus have a rich history founded in athleticism, education, environmentalism, and moral discourse. Recent literature such as Brookes (2002) poses questions about how to best incorporate these aspects together into a coherent curriculum for students of all ages when programs are tied to classroom learning.

Modern adventure programs, however, have been fraught with discourses in the media about the inherent risks posed to the participants in light of unfortunate tragedies such as the Stainforth Beck incident in the U.K in 2000. Similar to Boy Scouting tragedies in the United States, two girls drowned in a stream that had swollen after unseasonal weather and under the

guidance of ill prepared and ill trained teachers. Beedie and Bourne (2005) catalogued the media hype surrounding the events in comparison to other media coverage of adventurous activities and found that media coverage largely focuses on tragedy and disasters as news worthy events, altering popular perception of adventure courses that schools in particular may shy away from.

This has created a debate to rethink the risks in outdoor experiential learning, (Brown & Fraser, 2009) especially when concerning adolescent youth (rather than teens or college aged students) and this can be seen in the current offerings of adventure programs. While there has been an overall growth in adventure programs available to students, these programs are often not associated with the student's school (such as Outward Bound) and often are lacking in offerings for youth ages 11-13. Outward Bound, a reliable, established and perceived safe program provider even demonstrates this phenomenon itself with it's current offerings: out of the 330 programs offered at the time of writing, only 30 are available for youth ages 12-13 (students age 11 are excluded), compared to 72 programs for ages 14-16 and 115 programs for ages 16-18. (Outward Bound, 2011) Youth are underrepresented in outdoor education, especially in adventure education despite supportive pedagogy and a historical legacy that encouraged outdoor adventure programs for adolescent youth.

### Review of the Previous Literature

Gaps in the literature are clear and have been reported by other researchers and other literature reviews. (McKenzie, 2009) When Ewert referred to the black box of outdoor education, (1989) he was describing both a gap in conceptual understanding and a gap in research that, unfortunately, has continued to the time of writing this paper (McKenzie, 2009 and Neill, 2010).

Much of the literature focuses on the observable outcomes of outdoor education (and for this study, outdoor adventure education), which by and large shows positive benefits from such experiences for participants. Observable outcomes have run a gamut of potential benefits for students. Outdoor learning has been shown to increase memory and retention of skills and learned information (Waite, 2007). Research has documented growth in self-concept and confidence of participants (Ewert, 1983; Gillet et al., 1991; Thomas, 1985), increased positive attitudes (J.E.E., 2000) growth in character and maturation (Roberts, 1974) and leadership skills (Riggins, 1985) while still providing opportunities for science and historical location based learning (Stewart, 2008) and positive student-teacher relationships later on. Cramp and Auer (2008) noted how outdoor education creates a benefit involving increased sensory abilities that lead to growth in rational skills like reasoning, empirical observations, deduction, and other more traditional modalities of learning. In addition, schools in which outdoor learning is incorporated into the school structure show higher physical activity levels and overall improved health in students, and it is thought that even short-term programs may encourage physical activity as enjoyable activity (Mygind, 2007).

In addition, Warren (2005) found outdoor programs to be great vehicles for inclusion, building on Wilson, (1994) who found outdoor education to provide opportunities for students with special needs. Outdoor programs have also proven effective tools in counseling troubled or disadvantaged students (Schoel, 1988; Nadler, 1993). Special advantages for girls and women in gender equity have also been noted (Humberstone, 1990; Kiewa, 1994) as well as for athletes (Meyer & Wenger, 1998). Using theories of multiple intelligence, Hayes (2009) summarizes that outdoor education can attract discouraged students that are not usually differentiated for to important fields such as conservation and environmental studies. Beames and Atencio (2008)

linked benefits such as these as building social capital that participating students will take with them into their adult lives, culminating in community cohesion.

The literature also comes closer to bridging the gap in studies that attempt to define components of outdoor education programs that could lead to the observable outcomes: Walsh and Grollins (1976) describe how a variety of components in combination are what lead to successful outdoor adventure programs where success is defined as meeting program outcomes such as improved self-concepts of participants or their interpersonal skills. There are multiple variables and influences that affect the outcomes of the black box (Ewert, 1983). Unfortunately, the components are not necessarily well researched or are inconclusive, as will follow below.

In her review of literature, McKenzie (2009) groups her readings into several possible components of outdoor education that lead to successful outcomes, a breakdown that can be revised for this study. McKenzie identifies ten components of interest: dissonance, challenge, failure, success and mastery, goal setting, choice, group dynamics, quality of activities, effective instructors, and the participant. These can be simplified for the sake of holistic understanding:

The first component, dissonance, refers to the new and atypical environment of the program. The next four components, challenge, failure, and success and mastery, refer to the process of the activities and the program. The next three, goal setting, choice, and group dynamics, refer to a balance of self-autonomy with the society of the group in the program. The eighth component of quality of activity is a blanket for the four process components: Are those components there? Do they meet the program goals?). The last two components can continue to stand-alone: the nature and backgrounds and skills both instructors and students possess can effect the outcome or change the goals of outdoor education (McKenzie, 2009). Neill (2010) provides a more simplified view with seven components he terms interactive domains, including

culture, but for this literature review, components of outdoor adventure education will fall under the following headings: location, the adventure process, group balance, instructors, and participants.

**Location.** For most participants of outdoor education, especially outdoor adventure education, there is little prior history of interaction with wilderness environments (Outward Bound, 2011). A recent study in the U.K. cited by Neill (2010) estimated that two thirds of children have never been camping - whether with families or without. Moving participants into this environment creates a state of dissonance in its unfamiliarity that, in contrast with their normal environment, can give new perspectives to those participants (Walsh & Grollins, 1976). Hattie et al (1997) also suggest that the wilderness has aesthetic and spiritual qualities that enhance self awareness and responsibility. The dissonance also creates a constructive level of anxiety and a perception of risk from the unknown (Nadler, 1993) that can be developed into new and responsible ways of thinking.

**The Adventure Process.** Dissonance is then enhanced by the challenges available in adventure education (Walsh and Grollins, 1976). Following the patterns in experiential education that were touched on in the Introduction with studies done by Hebb, (1955) Dewey, (1925) and Ewert, (1986) Walsh and Grollins (1976) add that participants must achieve success, or master the skills associated with the prescribed activities, to overcome this state of dissonance. Dissonance is not just location based, but is equally based on the new activities and challenges participants face. A cycle of challenge, dissonance, mastery, and success emerges that can lead to participant growth (Dyson 1995; Witman, 1995).

Success and failure both play key roles in this process. On one hand, small setbacks and instances of failure serve beneficial purposes, teaching that success requires effort and repeated

tries (Bandura, 1997). These create opportunities to develop new skills to help overcome what are really temporary moments of failure because outdoor adventure activities are typically structured so that successes are attainable by participants (Kimball & Bacon, 1993). Successes then build personal efficacy (Bandura, 1997) and the self-confidence to overcome obstacles. This becomes a pattern that is incorporated into the process models as natural outcomes: challenges are appropriate if participants can see them as attainable, though they will take sustained effort and perseverance (Neill, 2010). Incremental increases in the challenges over the course of the program - the sequence of the program- are also thought to be key to participant growth (Bisson, 1998; Kimball & Bacon, 1993; Walsh & Golins, 1976).

Although the literature supports each of these factors in the adventure process as important to achieving positive observable outcomes, there is little to link specific activities with specific outcomes (McKenzie, 2009). So, while characteristics such as balancing success and failure and having appropriate challenges and reflection are suggested for outdoor adventure programs, there is little research to back up these suggestions (McKenzie, 2009, Neill 2010). Research is thus limited on what activities and other specific qualities activities should have so long as they include these qualities; theoretically there is no difference between white water rafting and a backpacking trip so long as they are quality activities with the characteristics discussed above.

**Group Balance.** Both Walsh and Grollins (1976) and the Outward Bound model for outdoor education process (Neill, 2010) hold that small groups, averaging around ten but potentially between 5-15 participants, provide a group setting that is small enough to be intimate, not contain cliques, and be collaborative, but large enough to contain social dynamics where leaders and roles must emerge. There is a balance in the group size where individuals can still



feel autonomous and have personal choice, and the nature of the group as a unit is still strong and cohesive for the participants. Challenges that include choice and individual levels of participation can create respectful and supportive environments, including when participants can set individual goals in light of common group objectives (Schoel et al., 1988). Meyer and Wenger (1998) found that individual goal setting can work in tandem with group goal setting to increase participant confidence. In this small group size, feelings of mutual dependence can arise, inspiring teamwork to the common group goals that has been linked to positive outcomes (Neill, 2010; Kimball and Bacon, 1993; Walsh & Grollins, 1976).

Yet, while the size of the group is a known factor, there is little that researches whether group culture, being previously acquainted with each other, or other social factors affect program outcomes. McKenzie (2009) also questions whether there are any social factors that decrease program effectiveness; as much of the research is looking for positive outcomes, little reports on what to exclude because of negative outcomes.

**Instructors.** There have been many studies that look into the background of instructors (McKenzie (2009) holds that most research into the components of outdoor education are focused on instructors) but the findings in these are across the board. For example, on the topic of gender, Phipps and Claxton (1997) found female instructors to be more highly rated by participants than male instructors, but Riggins (1985) found that participants favored male instructors. Aguiar (1986) found factors such as gender, age, personal interests or opinions, and personality to have insignificant correlations to effectiveness. On the other hand, Hendy (1975) found that instructors rated as effective had certain personality traits in common, such as being reserved, bright, creative, and dominant, but these personality traits are not linked to outcomes. Both Aguiar (1986) and Riggins (1985) found education and experience, both in terms of

outdoor experience and experience as an instructor) to be influencing factors to instructor effectiveness.

Interestingly, Thomas (1985) found that instructors with positive self-concepts encouraged self-concept growth in participants. Riggins (1985) also found a correlation between good teacher practices and being effective outdoor instructors with high but attainable expectations and giving encouraging positive feedback. As with the type of activities presented where the activity itself matters little compared to the quality it is offered as, the inconclusiveness surrounding instructor personal details indicate that they matter little compared to the actual quality of the instructor as an instructor.

***Participant Backgrounds.*** Factors such as age, sex, personal backgrounds, expectations, and motivations of participants may be factors that lead to positive or negative outcomes, including the overall effectiveness of a program, (McKenzie, 2009) however these areas are largely not researched especially compared to the backgrounds of instructors. As noted earlier, some studies have looked at specific demographics, such as including students with disabilities and special needs for positive results, (Warren, 2005; Wilson 1994) the benefits of outdoor education for girls, (Kiewa, 1994) or positive experiences and effects on troubled youth (Schoel, 1988). Despite these studies that mark benefits for specific demographics, participant background has rarely been assessed or taken into account.

Research into the components of successful outdoor adventure programs are haphazard and sometimes inconclusive. While components such as instructors and the adventure process are well researched, they are inconclusive when taken beyond issues of quality and effectiveness. On the other hand, some components, like the nature of the participants themselves, are little researched and location itself is a mostly assumed quality based on a long serving background of

belief in the intrinsic value of the outdoors. There is no conclusive data- qualitative or quantitative- to show positive correlations between the various characteristics in these components and observable outcomes.

**Barriers.** Another section in the current literature concerns itself with the barriers to implementing adventure and non-adventure outdoor education programs. Unfortunately, there is a divide in communication about education in the outdoors as the rhetoric surrounding positive outdoor experiences may not do justice to or properly describe the true experiences of students, making outdoor education (regardless of type) hard to promote (Zink et al., 2008). Schools and instructors may also perceive programs as hard to implement, connect to curricula, time burdens, or too expensive though opportunities for alternate sources of funding exist (J.E.E., 1998) and some countries such as Australia, New Zealand (J.E.E. 2007) and Denmark have explicitly integrated outdoor programs into school curricula. Recent studies in these countries (Bentsen et al., 2009; Brookes, 2002; Stewart, 2008) recommend the merger of outdoor education and curriculum, often as additions to every-day learning.

Notably, studies also support the idea that even a day of outdoor education can have useful and lasting effects, often thought to be the domain of week long trips and long term programs (J.E.E. 1998). While longer programs may have greater effects and allow for more immersion, short programs and day trips are effective and can be used to promote outdoor education to reluctant or discouraged schools, parents, and educators. Greening school grounds can also create opportunities for students to experience outdoor learning, though there are difficulties if this involves radically changing a school's physical environment in many locations (Dyment, 2005).

Another issue present in the literature is the nature of risk involved in programs and risk management. Tragic events color media coverage and increase the perceptions of danger in activities even when they can be done safely (Beedie & Bourne, 2005). As an analogy, consider how the fear of flying leads individuals to choose cars as an alternative, despite how the actual likelihood of injury or death in plane flight is miniscule compared to automobile accidents. In studying a U.K. School group that lost two students in an unseasonably high and fast creek, Beedie and Bourne (2005) found that tragedies of one group can color perceptions across an entire country, and as such it is critical for schools and program providers to document and be clear on all safety protocols. While risk is inherently present in any program it is even more elevated in adventure programs as these often include strenuous physical challenges. Brown and Fraser (2009) summarize the dilemma of risk as the choice between risky but desirable wilderness locations and the limited undesirable but physically safe urban environments like local parks, with the outcome of that choice based more on the perception of risk than any real inherent risk.

#### Interview with an Expert

I interviewed three teachers at Arbor School, a pseudonym, for background on the outdoor education programs at the school as a precursor to surveying students from the school's sixth and seventh grades before and after their adventure programs. These three teachers were chosen for their specific and unique involvement with the outdoor programs. First, I interviewed M, the primary music teacher at Arbor. M has the experience of having participated in outdoor programs every year since their inception in the 1982- 1983 school year. He has a unique, holistic perspective on how outdoor education has been offered at the school over nearly two

decades of teaching. Second, I interviewed A, one of the two sixth grade teachers who has taught in that position for thirteen full years, the first of which was spent revamping the sixth grade outdoor program, changing it into what is used today. Third, I interviewed V, who was actually a student at the school and went on the school's Yosemite program in 1984 (of which N was a participating chaperone) and has been teaching at the school and organizing that trip for seventh grade students since 1996. All three teachers happen to be male, but are of clearly different ages. The three teachers together provide excellent perspective on the program, how it has changed over time, and the benefits and challenges in implementing the program that could potentially serve as a model for other schools.

*Changes Over Time.* No trip at the school is how it started. Outdoor education started in the Upper Division, seventh-eighth grade, and has since trickled down to encompass third-eighth grade, though in different ways. Third grade goes to Walker Creek Ranch, a facility supported by the Marin County Office of Education to promote learning about Marin, fourth grade goes to Coloma where gold was discovered in California, fifth to Calaveras Big Trees, sixth to Pinnacles National Monument for rock climbing, seventh backpacks in Yosemite National Park, and eighth participates in a high ropes course while their week that was once devoted to outdoor programs is reserved for a trip to Washington D.C. In this way, the third and fourth grade programs are directly tied to and are a part of curriculum for their years, and the eighth grade ropes course is officially divorced from the curriculum, instead focused on personal growth and team building. Originally, the Yosemite trip was included in the eighth grade year, but was pushed down to the seventh grade and replaced by the ropes course because of the combination of opening up outdoor education to more grades and the desire to provide a trip to the capitol when the students

study American history. The two go hand in hand, and most of the location changes have stemmed from faculty initiatives.

The current set up has stood relatively unchanged for the last decade, and previous trips to other locations and with other activities could be seen as experimentation to find the right combination of activity, location, and program leaders for the students. Previous programs for the sixth, seventh, and eighth grade have included trips to Donner Memorial State Park, Catalina Island, Big Sur, Big Basin, and the Colorado River. Programs have experimented with other adventure activities for the sixth, seventh, and eighth grade programs, including rafting, canoeing, and windsurfing before settling on rock climbing and backpacking. Regardless of the activities, however, the general trend over the last twenty years has been to move away from dorm style or cabin stays for these grades and turn instead to camping in tents with outdoor cooking and spending more time in wilderness areas; the ideal expressed is one of immersion, and the epitome of this ideal is the backpacking trip.

When A started at the school, the sixth grade trip was in great need of revamping. The previous trip through the Marin headlands was “piecemeal and non-cohesive” and was described as being great for an overnight trip, but this was instead dragged out over four or five days. Students stayed in dormitories and were shuttled around to various sites, like the Nike missile base, Pt. Reyes National Seashore, and WWII era bunker emplacements to learn about Marin history and Marin ecology. The activities in of themselves were fine, but the program had significant faults. The program was considered too local as the visited locations were easily accessible for most of the students and their families and many students had been to these areas of Marin before. In addition, activities were disjointed and offered no personal growth. The program was disdained as “tourism with hiking.” In comparison, going to Pinnacles National

Monument provides enough distance that most students and many parents have never heard of the location, are not likely to visit it, and it offers physical challenges in the form of hiking and rock climbing.

Similarly, seventh and eighth grade students went to a camp in the Santa Cruz Mountains that turned out as little more than summer camp but without the activities. Boredom and poor planning ran rampant. This was described by V as “the worst outdoor ed trip ever.” The school switched to using the Yosemite Institute, but initial trips also involved day hiking, no backpacking, and sleeping in large barracks or even in Camp Curry in Yosemite Valley. The trip was described as “a massive slumber party,” which has been left by the wayside in favor of more intense activities that could provide a “depth of experience” for students rather than a superficial vacation. Early forays into adventure education led to one eighth grade trip at Donner Lake in the springtime which included windsurfing, but was still “more vacation than outdoor education.” Any social benefits and group bonding were also seen as less than in fall trips, which will be touched on in the benefits discussion below. This led to the decision to backpack in the fall as a culminating experience for the eighth grade. Later, it was decided to take the eighth grade students to a ropes course and to Washington D.C., and the Yosemite backpacking program was moved to seventh grade instead.

Programs to the Colorado River and Catalina Island were part of this process of change within the seventh and eighth grade experimentations before settling on backpacking in Yosemite for the seventh grade. Both of those trips had notable advantages and differences from the current program. Interviewees highlighted that location plays a role when looking for the right combination of components for the students, but that, in retrospect, location in of itself does not play a big part as programs can, and should, be adapted to each location differently. It is

wholly possible that the school could have made a location like Donner or the Colorado River “work,” but that the current locations have facilitated program development. Yosemite in particular has a reputation and level of history behind its name that does add an unquantifiable “wow factor” to the experience as a culminating experience.

*Similar Threads Over Time.* The two factors that have set the current program are the decision to backpack to experience this immersion in the outdoors and the decision to use Naturalists At Large (NAL) as program providers. The school had tried programs provided by others, for example the Yosemite Institute, but NAL had and continues to have several advantages: NAL provides programs for several years in multiple locations (now providing programs for fifth through seventh grade), NAL has tuned the activities and learning experiences to be appropriate for the different ages, NAL naturalists have been consistently "stellar," NAL has well established and effective protocols for both safety and communication, and NAL has been consistently easy to work with as a reliable company. NAL’s ideas were in line with the school’s perception that outdoor education should not just be “let’s go outside and learn about nature,” but offer greater benefits for student development. NAL has also been described as being incredibly receptive to faculty suggestions, either from their own business environment or possibly from the length of time doing business with the school. Either way, NAL has incorporated suggestions and requests with due reliability. Changes over the last decade have been described more as “tweaks” to improve a good program into a great program. NAL has now been used for twelve years. The program students are going on in this study will mark the school’s thirteenth year with NAL.

Although NAL has been a common thread and grounding point for the outdoor programs, interviewees noted that NAL has made self improvements and subtle changes over time that are



worth noting: instructors and naturalists were described as being of increasingly better caliber as educators, less “tree-huggy, touchy-feely and more grounded, prepared educators.”

The key to what has remained similar over the years of the program is experiencing and appreciating the outdoor world, creating a positive experience in the out of doors that permeates the students. V noted that people forget that “part of the appeal is this great spirit of adventure” that will create a different experience for each child. That spirit and appreciation is the core of every benefit observed at day’s end.

***Comparison to Curriculum.*** Interviewees had different opinions on how and how well the outdoor programs tied in with curricula and everyday learning. As previously mentioned, the third and fourth grade programs are directly tied to the curriculum in their particular years. The adventure programs have a more nebulous relationship. On one hand, science content in the sixth grade program ties in loosely with subjects taught in class, but at different times, thus “exposing” students to ideas like astronomy that they will return to later in the year or “planting the seeds” for topics in later years. On the other hand, seventh graders learn directly about Yosemite ecology and history in their classes and create projects, write, and are tested on the information to “prep” them for their experience. A less explicit connection can be made to students’ mentoring programs at the school. Yosemite provides a great topic for faculty mentors to share in their groups of seventh and eight grade mentees. It enables getting to know the student mentees better, and mentees can touch on their shared experiences. Eight grade mentees can pass on and teach the younger seventh graders in their mentoring groups, bonding them together.

***Benefits of the Outdoor Programs.*** Faculty and administration have keyed into having more outdoor experiences, both for the sake of having authentic outdoor experiences and for the personal growth these experiences can foster in the students. While location is important,

location is more of a vehicle for the personal growth of students and the team building the activities performed there bring. In N's words, the outdoors is "just the venue." In his perspective, personal challenges and team building are at the core of outdoor education at the school. These are concepts that correlate with the school's mission statement and ideal "Pillars of Character" that focus on and guide student learning and development. There is "a firm belief that outdoor education is something we need to do." From this perspective, connection to the curriculum or academic goals is secondary. It was noted that each experience is different for each student, and they will respond differently, but all for the better.

For M, changes in students before and after outdoor programs are hard to perceive, but he believes this to mostly be due to his position as a music teacher where he interacts broadly with the entire school population which prevents him from getting in depth enough to "really get to know students and see [changes] in them" though he does see it on the trips he participates in. He remarked that "character shows" over the course of the program, and "students tell you on the trail" about their accomplishments and share "new pride," but he can tell that students generally like the programs and the experience.

One interesting theme brought up by all interviewees was the importance of conducting the adventure programs in the fall. Offering the programs for fifth through eighth grade, the ropes course, not the Washington D.C. trip, in the fall was "so important" as the effects of social change and group bonding "don't resonate" and are "short lived" if done in the spring when "the social dynamics have already been set for the year" and students have "already bonded" in ways that cannot be changed or influenced anymore that year.

Social dynamics, personal growth, and group bonding were all reported benefits, though in slightly different ways in each grade. The sixth grade trip has students in different trail and

climbing groups than in their sleeping tent groups for the purpose of reshuffling the social dynamic. Students tent with friends, but go through challenges with classmates that they might not normally interact with. This “skews the playing field” and both challenges confident students and provides new opportunities for the “wallflowers to shine.” This creates more positive social change and creates more genuine friendships: it is very different to make a friend when you can say “my life was in your hands and not because you have a nice phone or cool clothes.”

This social shuffling cannot be done on the Yosemite program as it requires groups that get along or have a certain harmony in them. Social issues are “too problematic” to have to work through in the wilderness setting whereas it is “safe” to do so in lower grades when there is less physical demand and the safety net of seeing friends in the evening. The Yosemite program, however, adds on “a sense of adventure” and greater appreciation for the “outdoor world” and the experiencing of it that “permeates your being” and “promotes self-sufficiency” in an immersive way that the other trips do not necessarily have. The trip is “very much experiential learning” and the personal and social growth is as much a learned lesson as science facts, environmental appreciation, history, or other tie-ins with curricula. In this sense, personal behavior, confidence, and social interactions are not merely observed outcomes but are skills to be learned; outdoor education actively addresses and teaches these to students. Still, the sense of extraordinary accomplishment elevates self sufficiency and provokes a “huge change” that is “intense” and “long-lasting.”

Benefits can also be addressed as being present for the school as a whole. The scope of programs at Arbor School is unique in its extensiveness, which could provide a benefit to public relations as a “selling point” for the school to attract future parents and investors. The adventure

programs in particular can be used to highlight the outdoor education component of the learning experience at the school. The programs set the school apart from others.

***Risks and Challenges.*** Faculty enjoy the various programs less so than students, but it was noted that the outdoor programs, especially the Yosemite program, are intensive and demanding for faculty members. The backpacking program especially is physically demanding for faculty in addition to twenty-four hour supervision of students. M noted that a few faculty have been on the backpacking program and came back saying they would never do it again. For the most part, faculty that go on it are willing and chosen because they enjoy the outdoors and return to chaperone year after year. Having the appropriate/fitting equipment and being in good physical condition are two important factors in the success rate of faculty members as leaders and chaperones, as some who would like to go cannot meet the demands of the physical activities. While the activities on either the Pinnacles and Yosemite trip certainly could have the potential to be dangerous, the policies of both the school and NAL are inline and comprehensive enough that "physical risk is not a major issue." Risks on programs are now more limited to altitude sickness and homesickness rather than a physical danger to life and limb.

Criticisms for the outdoor education program as spanning across the school were primarily focused with the fifth grade program to Calaveras. In the opinion of my interviewees, unlike the other grade levels, the Calaveras trip "has no focus" and is primarily concerned with camping for the sake of camping. Unlike the programs in later years, there is no physical challenge or team building exercises, and unlike the younger years, there is no connection with curriculum. On the other hand, it was noted that it is possible that the experience itself could be a fine enough goal for the grade level, especially for so short a program. In contrast, however, fifth grade trips offered through the county's public school facilities are typically an entire week in

length – the same length, though not the same intensity – as the seventh grade Yosemite program. In M's opinion, the faculty is fine with the experience the way it is, but M would prefer to see "more meat" to the program to provide balance with the other programs. Even the Yosemite trip has this as a minor issue as he believes it would be nice to learn more about the history and science of all the areas the students visit. For the Calaveras trip however, M scouted areas out on his own time during the summer months to build a water survey activity where students learn about and monitor the health of a creek ecosystem. None of the other programs have necessitated this level of personal investment, reconnaissance, or fleshing out.

Some other locations have also been considered which highlight a particular challenge for implementing outdoor programs. When the sixth grade trip was undergoing revamp, Joshua Tree National Park was also considered. Like Pinnacles, it offers rock climbing and could offer a very similar program to the one currently in place. The major difference was distance. While NAL would have charged similar amounts for either program, the cost in bus rental for transportation would have doubled. If the program were to change, this could be revisited and reevaluated as an option, but at the time it settled the choice between the two parks.

The programs themselves as a whole were noted for their expense, which has increased dramatically over the last decade. It is hypothesized that the greatest portion of cost increase is from increased needs to provide hazard insurance on adventure programs, which would connect to the more recent literature seen on risk management. The cost of the programs have come close to doubling in the last decade, as has the cost of bus rental, likely due to increased fuel costs. The 2010 Yosemite trip, for example, cost \$22,880 total for the school, which breaks down to \$520 per student. This does not include the bus rental, which has run between \$1,000 and \$2,000, or other fees the school may assign to the total cost per student. (As comparison, Outward Bound

charges individuals well past \$1,000 for similar programs (Outward Bound, 2011). Added fees help cover financial aid and emergency expenditures. Other than factors of cost and distance, the interviewees reported no real logistics problems while on or in planning the trips.

***Perceptions and Reception of the Programs.*** Despite the challenges for faculty, there is a consensus that the participating faculty members enjoy their involvement. Faculty members suffer little burnout over the course of years, and participation is elective. Faculty members who have found the programs to be too difficult personally are not required to participate in the future. Conditions for faculty are mitigated by the slight changes made to the programs or rotating who will go on which trails or participate in which activities. As previously noted, many return to the trip year after year to chaperone the various programs. In A's opinion, the benefits to the students, which are always new, would persuade him to continue as "it's always [a student's] first time."

Interviewees reported that parents have increasingly come on board with the programs and have bought in to it as a safe, enjoyable, and worthwhile experience that the school offers. In the early days of the Yosemite program, parents voiced more concerns about safety and risk during parent information nights, but the last few years these have been limited to concerns for students with allergies or social dynamics of having a child's "worst enemy" in their trail group and have little or nothing to do with physical injury. In a way, the safe and positive experiences starting in third grade serve as "indoctrination" for parents who might not be as comfortable with adventure programs, who then hear reviews from their children that set up later years for success.

One change over time may also be reflective of the changing generations of parents and students. It was observed that at the beginning of the trips, "we had students who didn't know which way of the shovel was up" and parents made faculty feel "like their employees, trying to

please them.” Since then, parents have taken more active roles in asking what they can do to help and have shown a greater initiative in taking their children on outdoor activities and spending more time with them in the outdoors on their own time. Parents and faculty both are “more confident” with the adventure programs and their questions and concerns are more collaborative with the school in the position of the expert rather than the parent as expert.

Students too look back on their outdoor experiences with pride and fondness. When students are asked at the end of eighth grade about their favorite memories, best experiences, and greatest changes, outdoor education and in particular Yosemite is always near the top of the list.

*The Future.* V had one comment that summarized the interviewees’ responses to creating an ideal program or making changes to better improve the current program: “I always want to tinker.” There are certainly things that can be improved to better gain the effects that the school and faculty hope students come out of the different programs with, but these are minor “tinkerings” or “tweaks” to the programs. It was, however, lamented that from the perspective of offering outdoor education, the eighth grade’s experience is now incredibly limited, especially when increasingly students can visit, or already have visited, Washington, D.C. with their families, though both trips for eighth grade are successful. Putting that aside, changes to the adventure programs would be small changes that arise from learning on the job and would not be likely to be major changes for many years. These are “simple changes” like making lunches before hitting a trail rather than on it, choosing a different route, or spending more time in certain locations rather than others.

## Sample and Site

Arbor school is a fully accredited, independent, coeducational, non-sectarian K-8 school in Marin County, California. The school employs 68 faculty and staff, and the 2011-2012 year marks the school's 31<sup>st</sup> year in existence. The school was founded on the basis of providing high quality and challenging education in a caring community, and came to focus on character building in education. This developed further into commitments to diversity, justice, and social responsibility, including partnerships with schools in Beijing and Maputaland, South Africa as well as local language tutoring for English language learners. The school has also adopted technology integration and was named a Leading Edge Technology School by the National Association of Independent Schools in 2005.

The school campus is in a residential neighborhood in Marin County. The school has three divisions: Lower, grades kindergarten through three; Middle, grades four through six, and Upper, grades seven and eight. Each has their own hall with classrooms that have doors to the outside or to breezeways, which is common in the local area. The campus has undergone green initiatives and has created gardens, including a chicken coop. In recent years have added a gym and arts and sciences building as well as colorful paint schemes throughout the campus.

Full enrollment sits at 380 students with class sizes maxed at 2 classes of 20 students for kindergarten through third grade and 2 classes averaging 22 students for all other grades. Of the faculty, the school employs 30 full time, 7 part time, and also employs 21 support teachers. Although tuition for the school is currently sits at \$21,760, approximately 24% percent of the 380 students at the school receive financial aid, in grants that range from \$3,000 to \$20,000. This is thanks to a substantial endowment that has grown over the school's history, and the total aid



rendered is \$1.2 million. The school population is quite socioeconomically diverse, but this is not necessarily apparent on the surface.

The research for this thesis focuses specifically on the sixth and seventh grades that have outdoor adventure programs to Pinnacles and Yosemite respectively. These two grades represent the sample and will be described in Chapter 3 Methods.

Arbor School uses Naturalists at Large (NAL) as the adventure program providers. NAL is California based and was founded in 1985. They have a focus on providing programs that are designed to meet the goals of the schools and organizations they serve rather than pre-packaged programs in the style of Outward Bound. Because of that, they have run a variety of programs from day only field trips to local areas, lodge based programs, camping programs, on up to backpacking.

It was noted, however, that as of 2010, the Arbor School Yosemite program was the only backpacking program they currently were facilitating that went into designated wilderness areas; all others were frontcountry rather than backcountry experiences. Unlike backcountry locations, frontcountry locations are easily accessible and are often developed with facilities and so could be used by day-trippers. Examples of frontcountry adventure programs NAL have facilitated are overnight backpacking trips at the Point Reyes National Seashore in Marin and rafting trips down the Colorado River. However, NAL program coordinators have expressed a love of the Arbor Yosemite program and continue to list it in their offerings in case another school or group has interest. It has become a selling point for themselves as facilitators as it shows their capabilities and commitment. NAL leaders on previous Arbor trips have expressed insistence and heavy competition for working on the Yosemite program; many have returned year after year to both Arbor programs.

In the Pinnacles program, students are in small groups that they tent with and other, different trail groups that they will rock climb with, the purpose being to help with socialization and break clique groupings. Their trip is four days long, Tuesday to Friday, with the two middle days as the core of the program. These two middle days have two sessions, one in the morning and one in the afternoon. On both of these days one session (either morning or afternoon) will be composed of climbing and the other of hiking through the National Monument with lunch break in between the sessions with their group on the trail. Each night is spent in a group campsite just inside the park entrance on the Eastern side of the park.

In the Yosemite program, students arrive on Monday and spend the afternoon acclimating and learning proper packing and Leave No Trace principles at a campsite just inside the park entrance. Tuesday through Thursday are spent on the trail, usually involving a bus trip to the trailhead at the start and a pickup from a trailhead at the end, at which point the students are shuttled to a campsite in Yosemite Valley. Depending on the chosen trail, trail groups may camp at different locations each night or set up a base camp to do a day hike on their middle day instead. Thursday evening features a campfire program with skits from both the trail groups and entertainment from the naturalists as a last night celebration. Friday morning is spent doing different activities in Yosemite Valley before boarding the bus back home. It is important to note that although the school must pay for the transportation to and from the national park, the bus used in the park is included in the cost of the program from NAL.

There are some similarities in both of the programs that are commonalities for NAL. These include group meals with shared responsibilities in preparation and cleaning, social games and activities in the evenings or to break tension and monotony on the trail, self-packed lunches for the trail, and group skits on the last night at, if permitted, a campfire. Each trail group has two

naturalists and two chaperones so that if there is a problem or injury, a representative from both NAL and Arbor can be present in decision-making capacities should the group need to be split. Both trips include lessons in astronomy, local history, myths and legends, the local environment, sensory awareness, and reflection times over the course of the programs.

#### Ethical Standards

This study adheres to the standards articulated by the American Psychological Association (2010) in the protection of human subjects. Additionally the proposal was reviewed by the Dominican University of California Institutional Review Board for the Protection of Human Subjects (IRBPHS), approved, and assigned number 8284.

## Chapter 3 Method

### Research Design

The purpose of this study is to examine the particular benefits of outdoor education adventure programs for middle school aged youth by sub-analyzing the experiences and characteristics of students who have gone on such a trip. As such two types of data needed to be measured: first, data on the effects the programs had on the students; and second, data about the programs they went on and what they experienced in particular. This is opinion based as it largely involves the student's self-concepts and personal perspectives on the programs. This led to choosing to use a set of surveys to gather the data sets.

The former set of data was gathered guided by the previous research on the benefits of outdoor education, such as improvement in social relations, appreciation for the outdoors and others, new skills, confidence, and self-esteem. In this chapter, I refer to the broad spectrum this entails primarily as confidence related as it recurs as a primary and noticeable benefit in both the review of the research and the interviews conducted, though questions were asked from across the broad categories of benefits. This portion in the survey process is referred to as the confidence survey or confidence section for ease.

The latter set of data, data on the programs, was guided by the previous research on the characteristics of outdoor education programs which are thought to have effects on the outcomes of those programs, whether beneficial or not. These characteristics are location, the adventure process, group balance, instructors, and participants. Thus data was gathered on student background demographics and identity as part of the survey process. Data collection on all of the factors allows for data on these components to be compared within a program rather than

comparing program to program in broad terms. Even more, this collection should be done somewhere with known successes to serve as a potential model of good practices for other schools or adventure program providers.

By gathering data for sub-analysis at a school with a well-established and successful program, the characteristics that can influence a program may be more apparent or pronounced; on one hand the programs are designed to influence students in positive ways, on the other hand this would make any negative influences easier to identify as well because they would stand out against the norm. In comparing both sets of data, weight can be given to the perceptions and characteristics of students who had experienced the most change during their programs, allowing us to shine a flashlight into the black box of outdoor education.

### Sample and Site

The site for this research was Arbor School in Marin County, California. Arbor school was previously described in Sample and Site section towards the end of Chapter 2. The sample used is both the sixth and seventh grades at Arbor who went on the Pinnacles and Yosemite programs in 2011.

The sixth grade is composed of two classes of 22 students each. There are 26 boys and 18 girls in the grade level. Two students are new to the school this year. Two boys in the sixth grade did not participate on the outdoor education program due to illness and injury. Out of the 42 students who were participating, 28 had started at the school in Kindergarten. The seventh grade is also composed of two classes but is overenrolled this year with one class of 23 students and one of 24, including a female exchange student. There are 26 boys and 21 girls in the grade level. Four students, including the exchange student, are new to the school this year. Two girls did not

participate on the Yosemite program, also due to illness and injury. Out of the 45 students who were participating, 29 had started at the school in Kindergarten.

As part of the survey, students were asked demographic questions in the section related to their identity. This was primarily because, unless the student's family applied for financial aid, there is little data kept by the school on student demographics. In the sixth grade, 66% of students associated themselves and their families with the middle classes, 19% were working class, and 14% were of the upper class. In the seventh grade, 60% of students associated themselves with the middle classes, 9% were working class, and 31% were of the upper class. Students also commented on the highest education level obtained by their parents. In the sixth grade, 50% of students reported parents with masters or other advanced degrees, 43% had graduated college, and one student reported only high school diplomas for their parents' highest level of education. In the seventh grade, 38% of students reported parents with masters or other advanced degrees, 47% had graduated college, and one student reported some college, and two students reported that their parents had not graduated high school.

Students were also asked about their ethnic and racial identity. This question was deliberately left as an open-ended question so that students could respond as they identified themselves. The school has a majority of students with European American racial and ethnic identities. Twenty nine percent of seventh grade students and 21% of sixth grade students responded with non-European ethnicities, Asian, Hispanic, African, or with non-white or non-Caucasian racial identities. Of these students, a significant majority (69%) identified as having "mixed" ethnicities or "multiracial." Many students listed the different ethnicities they identified with, and created a wide range from one word responses such as "Scottish" or "Asian," to combinations like "Asian-German" and "Kiwi-Maori-American," to more elaborate responses

like "mixed European, quarter Filipino, and a bunch of other stuff!" This has some implications for the school as the school does not track or keep data on student racial or ethnic identities.

### Ethical Standards

As addressed in Chapter 2, this study adheres to the standards articulated by the American Psychological Association (2010) in the protection of human subjects and was reviewed by the Dominican University of California Institutional Review Board for the Protection of Human Subjects (IRBPHS), approved, and assigned number 8284.

### Access and Permissions

Permission to survey the students and interview faculty for this thesis was granted by the headmaster of the school in the spring of 2011 when the project began. As part of school policy, parents sign usage agreements for allowing the use of student information or images and are informed of school policies regarding student confidentiality or student image and quote usage. The school allows parents the choice to opt out, which was used to verify if any students could not take the surveys. The voluntary surveys given to the students followed the school's policies on student protection and confidentiality.

### Data Gathering Strategies

The sixth and seventh grade students at Arbor School were surveyed twice: once before and once after their respective outdoor adventure programs. The first survey was used to establish a baseline that the second survey can compare to. In this regard, the surveys have a section to identify typical benefits of adventure programs, such as self-image and self-confidence as well as perceptions about academic performance and social growth with their peers at school.

The first survey asks questions to gauge the anticipation and student view of the outdoor program they are planning to go on as well as gather voluntary background information.

The second survey reiterated many of the original questions about personal growth and bonding with peers. This was then compared to the initial survey to identify both individual students and the trail groups with the most growth, those with none, or those with negative growth. This was then compared to a second section in the second, post-trip survey. In this second section, students were asked for facts and opinions on the components of their outdoor education experience. In this way the program could be analyzed for any common themes connected to personal growth or outlying factors that can effect how positive the outdoor experience was for the students.

This process provides a case study for the outdoor adventure programs at Arbor school by directly surveying the students involved in those programs using both quantitative and qualitative data. The case study is bolstered by the interviews conducted of faculty involved in the programs at the school, which are included here in Chapter 2. The end goal of this strategy was to use the comprehensive case study to create a model or method of interpreting how outdoor education characteristics function in the “black box.”

## Measures

Data was gathered using voluntary surveys before and after the adventure programs for the purpose of comparison. Several types of questions were asked, though most involved agreement/disagreement with statements on a 1-5 scale with the following representation: 1, disagree strongly; 2, disagree somewhat; 3, neither agree nor disagree; 4, agree somewhat; 5, agree strongly. In this way a baseline score using a numeric value could be created to directly



compare a student's level of self-confidence before and after the program and an average for classes and trail groups created while students could be compared to each other using the individual responses.

Some questions were more qualitative and asked for student responses. These questions were used to give a more holistic view for the students and provide voice for students who may not survey easily. For example, while a student who rates themselves consistently across the board in both surveys may appear to not have gained or lost anything from the trip at all, asking for written answers may show changes that the similar numbers do not, or confirm them without further doubt. Additionally, students may feel the need to explain or qualify their answers on questions, so an open response can provide greater insight and allow some buffer for the quantitative data interpretation.

### Procedure

Surveys were administered to the sample students in two sessions. The first survey, which established a baseline for the students' levels of confidence and self-esteem, was administered in the week prior to their outdoor programs to Pinnacles and Yosemite. The following week the students went on their programs. The second survey, which worked to see changes in the students from the previously established baseline, was administered the week after the programs when the students returned to school. In both cases, the students were not given a time limit on the surveys, but finished in approximately twenty minutes. The timing for the administration of the surveys was arranged beforehand with the student's teachers.

Both the pre-trip survey and the post-trip survey were administered via Google Surveys online. Students used school computers to complete the survey. Students' names were checked

off of the teachers' class lists to keep track of who was taking the survey in case of absences, and to ensure that their names would not have to be entered in the survey program for the sake of anonymity and protection. Google Surveys allows for real-time analysis of the data using some methodologies, but it was necessary to wait for all students to complete the surveys before an accurate analysis could be undertaken.

### Data Analysis Approach

First, the data that was from quantified questions on confidence and self-concept representing the various personal and social benefits to outdoor education were added to together to create a confidence index for individuals, trail groups, grades, and the whole sample. Tallying up the numbers from positive statements and subtracting the numbers from negative statements yielded a confidence score for each student for each survey. The differences, positive or negative, between the two became the change in confidence, or confidence index. This divided the students into those who had an increase in self-confidence and those who had a decrease in self-confidence that could be compared to the scores for the sections on the different components of outdoor education. Effectiveness was determined by comparing the quantified confidence index scores on the survey for the different possible divisions in a simple before to after ratio. This created a second index for change in confidence, our measure of effectiveness.

The data concerning self confidence was analyzed using an internal sub-analysis between several factors in contingency tables with the ability to make comparisons in a variety of ways: individual to self, individual to trail group averages, individual to whole grade averages, grade to self to see overall average changes, sixth grade versus seventh grade to compare program effectiveness, and trail group to other trail groups or grade to shine light on the effectiveness of

the experience in the differing groups both quantitatively in the form of a chi-square and qualitatively for patterns or trends. This provides for individuals and trail groups who benefited the most to stand out and be analyzed for trends separately if necessary. In identifying these individuals and groups, the groups could be compared along the characteristics of outdoor adventure education of location, the adventure process, group balance, instructors, and participant identity. This final comparison revealed what characteristics stand out for positive effectiveness and what characteristics stand out for negative effectiveness, thus connecting characteristics with benefits.

After this analysis, the written responses were reviewed and seriated. Particular attention was paid to responses that were particularly articulate, responses that were outliers, and the responses of individuals with little or no change in their confidence index. The responses were also analyzed for trends and common themes.

## Chapter 4 Findings

### Summary of Major Findings

Contingency tables allowed for some of the data to be processed quantitatively. Chi-squares and Fisher's exact tests were used to look for statistical significance. Contingency tables were used to analyze the components of instructors, group balance, the adventure process, student backgrounds, and locations used in the programs.

***Instructors.*** Chi-squares performed for correlation between positive or negative changes in confidence and instructors for both sixth and seventh grades, both grades combined, and for changes greater than one standard deviation revealed no statistical significance. For both grades, all students that experienced a change in confidence that was greater than one standard deviation rated their instructors with an average score equal to or greater than three out of five. Less than 14% of all students rated their instructors with an average score below three out of five; thus many students who had decreased confidence scores rated their instructors favorably.

While each trail group in the seventh grade had both a male and female instructors, naturalists and teachers, present, the sixth grade groups had male, female, or instructors of both genders. There was no significance between having male or female instructors, nor was there any significance between having an instructor of the same gender as the student and that student's change in confidence.

***Group Balance.*** Chi-squares performed for correlation between positive or negative changes in confidence and group balance for both sixth and seventh grades, both grades combined, and for changes greater than one standard deviation revealed no statistical significance. For both grades, only one student out of twenty-two who experienced a change in

confidence that was greater than one standard deviation rated their group balance with an average score less than three out of five. Less than 7% of all students rated their group balance with an average score below three out of five; thus many students who had decreased confidence scores still rated their group balance favorably.

*Adventure Process.* Chi-squares performed for correlation between positive or negative changes in confidence and group balance for both sixth and seventh grades and both grades combined showed statistical significance. For both grades, increases in confidence correlated with scoring the adventure process favorably, average scores equal or greater than three out of five, and decreases in confidence correlated with scoring the adventure process unfavorably, average scores less than three out of five. Some students with negative changes still rated the adventure process favorably; this is 11.49% of all students. The percent of students with positive changes who rated the adventure process unfavorably is 9.19%. For those with no change in score (six students), half rated the adventure process favorably and half rated it unfavorably.

With two degrees of freedom, and an alpha value of  $p = 0.05$ , a chi-square value of 5.99 or greater would be needed to show statistical significance. Fisher's exact tests were performed on the contingency tables to check the reliability of the chi-squares due to the small sample size. Again, the sixth grade, seventh grade, and the grades combined were statistically significant. Both the chi-square and Fisher's probability values are included the tables.

Contingency Tables for Adventure Process on the 6 <sup>th</sup> Grade Pinnacles Program			
6 <sup>th</sup> Grade	Adventure Process Mean Score < 3	Adventure Process Mean Score > 3	Totals
Positive Change in Confidence Score	3	25	28
Negative Change in Confidence Score	7	6	13
No Change in Confidence Score	0	1	1
Totals	10	32	42
Chi-square Value = 9.42, Fisher's Probability: p = 0.009			

Contingency Tables for Adventure Process on the 7 <sup>th</sup> Grade Yosemite Program			
7 <sup>th</sup> Grade	Adventure Process Mean Score < 3	Adventure Process Mean Score > 3	Totals
Positive Change in Confidence Score	5	25	30
Negative Change in Confidence Score	6	4	10
No Change in Confidence Score	3	2	5
Totals	14	31	45
Chi-square Value = 8.76, Fisher's Probability: p = 0.013			

Contingency Tables for Adventure Process on the 6 <sup>th</sup> and 7 <sup>th</sup> Grade Programs Combined			
Combined 6 <sup>th</sup> and 7 <sup>th</sup> Grades	Adventure Process Mean Score < 3	Adventure Process Mean Score > 3	Totals
Positive Change in Confidence Score	8	50	58
Negative Change in Confidence Score	13	10	23
No Change in Confidence Score	3	3	6
Totals	24	63	87
Chi-square Value = 16.67, Fisher's Probability: p = 0.000			

### ***Student Background***

Questions about student background included several categories: ethnicity, whether they had been camping or backpacking/rock climbing before, when they started at Arbor School, the student's gender, parents' education, family socioeconomic status, and whether the student was personally looking forward to the trip. Only one of these background categories showed any statistical significance when compared to increases or decreases in confidence, and that one was when the student started at the school for the 6th grade students. On their own, the 7th grade showed no statistical significance in regards to this category, but the significance was so overwhelming for the 6th grade that when both grades were combined there was still statistical significance.



Contingency Table for Year Students Started at Arbor School on the 6 <sup>th</sup> Grade Pinnacles Program				
6 <sup>th</sup> Grade	Kindergarten	Other Grades	New Student	Totals
Positive Change in Confidence Score	19	8	1	28
Negative Change in Confidence Score	9	4	0	13
No Change in Confidence Score	0	0	1	1
Totals	28	12	2	42
Chi-square Value = 20.7, Fisher's Probability: p = 0.000				

Contingency Table for Year Students Started at Arbor School in both the 6 <sup>th</sup> Grade and 7 <sup>th</sup> Grade Programs				
	Kindergarten	Other Grades	New Student	Totals
Positive Change in Confidence Score	41	15	2	58
Negative Change in Confidence Score	14	8	1	23
No Change in Confidence Score	2	2	2	6
Totals	57	25	5	87
Chi-square Value = 10.3, Fisher's Probability: $p = 0.035$				

### *Location*

There was no statistical significance between the two trips as wholes and changes in student confidence; both were equal in likelihood to produce an increase in self-confidence in the students surveyed. 66.66% of students who went on the Pinnacles program as well as 66.66% of students who went on the Yosemite program experienced an increase in confidence scores when surveyed.

Comparison was also made between the different trail groups on each of the programs. For the students who went on the Yosemite program, there was no statistical significance in comparing the four trail groups to changes in confidence using chi-square or Fisher's exact test. For the students who went on the Pinnacles program, however, there was statistical significance

between the combinations of different climbs the students participated in. The students went on two out of three possible climbs. For one of these combinations, all of the students had increases in their confidence scores.

Contingency Table for Climbing Possibilities on the 6 <sup>th</sup> Grade Pinnacles Program				
	Camelback and Sisters	Tourist Trap and Sisters	Tourist Trap and Camelback	Totals
Positive Change in Confidence Score	15	10	3	28
Negative Change in Confidence Score	11	0	2	13
No Change in Confidence Score	0	0	1	1
Totals	26	10	6	42
Chi-square Value = 12.4, Fisher's Probability: $p = 0.014$				

### Analysis of Themes

Many of the assessed components in outdoor education showed no statistical significance when assessed quantitatively. While the numbers are not statistically significant for these components, they show visible trends in student responses that would reflect on the strength of these components in the existing program outweighing their particular significance in leading to the outcomes of the outdoor education programs. Both 6<sup>th</sup> and 7<sup>th</sup> grade students rated their instructors favorably at rates of 81% and 91% respectively. Similarly, both sixth and seventh grade students rated their group balance favorably at rates of 100% and 87% respectively.

***Student Background.*** While all but one of the background components were not statistically significant either, some trends do emerge. First, all of the students from working class families in the seventh grade and 75% of the same from the sixth grade had increased confidence scores, a much higher rate than their middle class and upper class peers who also represent the majority of the students at Arbor School. Results were similar for students who had parents without college degrees compared to the majority of students (93%) who reported their parents to have college degrees or advanced degrees. All of the students whose parents did not have college degrees saw increases in their confidence scores.

***Previous Outdoors Experience.*** While there was no apparent correlation in previous outdoors experience in the changes in confidence students experienced, the surveys did reveal patterns about the students at Arbor School and their families: At 90%, a majority of students in the 6th grade reported having rock climbed before, either outside or in a gym setting whereas only 47% of students in the seventh grade had ever been backpacking. 80% of students in both grades go camping with their families as opposed to solely on school trips or never before.

***Anticipation and Returning.*** Students in both grades showed similarities in how they viewed the upcoming outdoor education programs with only small percentages were not looking forward to it. 83% in sixth grade and 80% in seventh grade looked forward to the trips positively. What did change between the grades was the number of students who were okay but nervous about the trip. This was a subtle change: while 10% of sixth graders were nervous about the Pinnacles program, 15% of seventh graders were nervous about the Yosemite program. On the opposite end, a much greater proportion of seventh graders reported having a greater appreciation for the outdoors and for the environment and a desire to return to Yosemite in some way (not necessarily backpacking). 57% of seventh

graders said they would want to return to Yosemite while only 11% responded negatively. In comparison, 38% of sixth graders said they would want to return to Pinnacles while a full 21% responded negatively.

It is of note that neither group experienced perfect conditions as the Pinnacles program encountered an extreme heat wave with temperatures in the triple digits Fahrenheit and the Yosemite program experienced thunderstorms and hail that turned to sleet at higher elevations. This does not seem to have put a damper on student enthusiasm for the trip, and previous years have encountered harsher conditions such as pouring rain while attempting to rock climb and several feet of snow coming down overnight in Yosemite. Students did not report weather to be a major factor and often related it in terms of fun: students in Pinnacles were offered the chance to go swimming to beat the heat while students in Yosemite journaled about the sound of hail and created sleds out of backpacks to use on the several inches that accumulated. The difficulties were tied to the general challenging nature of the programs as minor increases in challenge rather than problematic issues with the locations in of themselves.

***Student Responses.*** Students were also given space on both surveys to write a one-word response of what comes to mind when they think of the program they participated in. For both grades before the trips, nearly 70% of responses had positive word associations like "fun," "amazing," "exciting," or "awesome." 10% of students reported negative words about the programs, including "injury," "death," "shameful," or simply "no." The remaining 20% commented on the nature or the location with words such as "hiking," "mountains," "natural," and "outdoors." After students returned, there was no real shift in language. While not in complete parallel, students responded in the same proportions after their trips, but all responded with a greater range of descriptors, such as "inspirational," "superb," "homesick," and

"exhausting." The positive and negative words are curiously in similar proportions to the students who saw increases or decreases in their confidence scores, but they are not one-for-one: some students with increased confidence scores responded with negative words and some students with decreased confidence scores reported the trip to have been "fun."

Students were also given an open space to respond about the trip or clarify any of their answers from the survey. Student responses correlate with the rest of the findings. For example, student responded that they "closer to the other students in the group," with classmates correlating with how students who have been at the school longer showed a higher likelihood of having increased confidence scores. Although the majority of students with increased confidence scores had been at the school since kindergarten, new students put great value on outdoor education as an opportunity to connect with their peers, a contrast to students who had been at the school for a few years already. One new student reported that they "felt bonded with classmates" and "more comfortable," writing that it was "very important" to them to have that chance.

Unlike the one-word responses, there was a greater correlation between students with increased or decreased confidence scores and positive or negative comments. Positive comments included saying that they "loved" or "admired" the naturalists, feeling "encouragement and support" from peers, and reporting feelings of accomplishment. One student proclaimed outdoor education as "the most important week of the year." Decidedly negative comments also correlated strongly with students who had decreased confidence scores, including one student who reported that "I had already been backpacking so there wasn't anything new or different so it was boring" and one student who called the trip "annoying" and said that the best event on the trip was "walking back to the bus that took us home." Most criticisms were constructive and

came from a wide range of students. Criticisms included wanting to hike farther, reorganizing whether it was a hiking or climbing day on the Pinnacles trip, and expressed annoyance at a few select naturalists for "making the activities not fun as they could be" compared to the other naturalists present.

## Chapter 5 Discussion

### Summary of Major Findings

Approximately two thirds of students in both the sixth and seventh grades experienced increases in their confidence scores. Comparisons made between the change in student confidence scores and favorable and unfavorable ratings of the adventure process, the grade the student started at the school, and the rock climbing possibilities for sixth grade students each showed statistical significance when chi-squares and Fisher's exact tests were performed. Analysis of trends within student responses supported these findings. The other components of outdoor education showed no statistical significance.

Other trends showed students to rate instructors and group balance components favorably. Students from working class backgrounds and those whose parents had not graduated from college all saw increases in confidence scores. Other categories within a student's background did not show any correlations to changes in confidence. A majority of the students used positive terms to describe both outdoor programs and many students offered constructive feedback on the parts of the programs they did have issues with.

### Comparison of Findings to Previous Research

***Outcomes of Outdoor Education.*** Previous research has documented growth in the self-concepts, confidence, and positive attitudes of participants. The research in this study is in line with researchers such as Ewert, Gillet, and Thomas who have documented such growth as approximately two thirds of the students in both grades showed increases on the confidence portion of their survey. Previous research has also documented outdoor education programs to be



opportunities for science and location based learning (Stewart, 2008). The students in this study reported increased appreciation for the outdoors, environmental stewardship, and demonstrated knowledge about different environments in California. Mygind (2007) found that outdoor education could encourage physical activity as being enjoyable. While some students reported not liking the physical activities on their programs, most reported finding them enjoyable and wanted to return to the outdoors to, if not backpack or rock climb, at least camp and hike.

Faculty at Arbor School did relate the need to overcome common barriers to implementing outdoor adventure education that are documented in the literature: issues of risk, communication, and cost. This study shows that it does take time for a program to become well established at a school, but that a well-established program may no longer face those barriers because the value of the program is evident to the school, student, and parent community. Greater communication to promote budding programs could help in achieving this. Arbor School faculty noted that the perception of risk was a strong barrier in the early years of the program, but that these were overcome within a few years as more outgoing students shared their experiences to the incoming students and more students went through the shorter and non-adventure styled outdoor programs in the lower grades. This provided stepping-stones that helped the school to overcome barriers typically associated with adventure education. This could be used as a strategy by other schools, especially when documented positive outcomes could help accrue support for changes or expansions in a program.

***Location.*** The demographics of the students in this study stand in stark contrast to the U.K. study Neil (2010) cited that estimated that two thirds of students had never been camping; in this sample, a majority of students had been camping with their families. This is likely due to the location and backgrounds of the students at a private school near readily accessible state and

national parks. What is of importance is that in this study it did not make a difference whether the students have been into the outdoors before or even regularly as they were equally likely to see positive outcomes and report significant changes in perspectives about both themselves and the natural environment. Walsh and Grollins (1976) tie these outcomes to dissonance, but location is one part of dissonance. This would indicate that the location serves to create dissonance because it is not part of the every-day life of the participants, not because they have never been there before.

Similarly, specific locations used within a program may have some relevance to positive outcomes. In this study, there was a marked difference for students who went on one particular set of climbs on the Pinnacles program. Though differences were not seen for students on the Yosemite program, many commented about the nature of their trail, for example, wishing to hike farther on a particularly shorter trail. This indicates that locational differences are likely to be more closely related to aspects of challenge in the adventure process rather than solely dissonance. In interviews with the faculty at Arbor school, it was indicated that students on the Yosemite trip were grouped to go on trails that they could meet the physical demands of. For example, students with known altitude sickness are placed on trails with lower elevations, and ones who have had joint injuries have been placed on routes that have less changes in elevation but are longer to make up the gap in challenge - none of the trails are easy. This is not done on the Pinnacles program. The locations used for challenging programs must be carefully chosen to meet the needs of the particular students going on the program and the program goals together, and students should be grouped for locations (in this case trails and climbs) that have appropriate levels of challenge for them.

***The Adventure Process.*** Studies by Hebb (1955), Dewey (1925), and Ewert (1986), and Walsh and Grollins (1976) show the importance of achieving success and mastering skills in the experiential learning that is integral to the adventure process of outdoor education. Small successes build efficacy and self-confidence to overcome more challenging obstacles. Students in this study reported that they felt they had gained new skills, overcome challenges, did things they had not thought possible, and did things they would not normally be able to do. The findings in this study showed a significant correlation between favorable adventure processes and increases in the positive outcomes of self-confidence, image, and efficacy. This indicates that whether or not the challenges were both appropriate and challenging for the individual are integral in the outcomes for that specific individual. It is, however, likely that the growth experienced by individuals on the program could have lasting effects that could change what happens when students return to school and have other unseen benefits for the group as a whole.

Students were asked to comment on the events activities they participated in that they felt were particularly strong or enjoyable, as it is not well researched as to what activities should be included. Student responses were across the board, mentioning the core activity itself, rock climbing, backpacking, hiking, to games, skits, journaling, and spontaneous activities or incidents, taking shelter from hail under great trees, seeing sunrise from a mountaintop. This seems to back up previous research that says it is more the qualities and characteristics of the activities and the challenges than any particular activity that should be done (McKenzie, 2009, Neill 2010).

***Group Balance.*** While there was no statistically significant difference in relation to group balance, most students rated aspects of group balance like group size, participation, and choice highly. The culture of the groups and the measures faculty took to choose the groups on

the programs have worked positively. It is possible that because this enabled other components of the outdoor education programs to stand out as having a much greater correlation to the outcomes. With such solid group balance, instructors could focus attention on fine-tuning the other components to bring them up to the same caliber.

***Instructors.*** While much previous research has focused on what makes an effective instructor, that research has been across the board as to what factors are important. The findings in this study supports the research of Aguiar, who found instructor backgrounds to be insignificant compared to their teaching practices. In this study, most students rated their instructors favorably, showing good methods on behalf of both the Arbor School and NAL. In having good practices from both faculty and naturalists, this component has become, like group balance, a component that is not as significant in the creation of positive or negative outcomes. While instructors can always work to continually renew and strengthen their own skills, having a solid base of best practices would allow instructors to focus on fine-tuning other aspects of the programs they run.

***Participant Backgrounds.*** Some researchers have focused on outdoor education as a vehicle for inclusion. While there was no special growth noted for students of color, other ethnicities, or gender, special growth was seen for students of lower socio-economic statuses and for those whose parents had not obtained college educations. All breakdowns in student background showed fairly equal growth of confidence, so it is likely that those who are more disadvantaged, whether by race, class, gender, or other differences, at a particular location will show a greater likelihood for positive outcomes depending on the demographics of the participants. Outdoor programs would provide an opportunity for those who are socially disadvantaged in some way to gain social capital amongst their peers.

McKenzie (2009) questioned whether social factors could lead to increased or decreased program effectiveness. This study does point to social dynamics being a significant factor in achieving positive outcomes for individual students. Students in the programs were all previously acquainted with each other, though some not for long compared to students who started at the school in Kindergarten and have known each other for most of their lives. New students voiced feeling more connected and comfortable with their peers at a new school, but the students who showed the greater likelihood for a growth in confidence were those who had been in the school since kindergarten. This indicates that there was a growth or added depth that those relationships were able to foster as the students were more invested in seeing each other succeed, sadly at the expense of more recent friendships. This could be a result of potential cliquing occurring at the school in early grades, though this has not been researched. This takes a small step to filling a gap in the literature as previous research has mostly left social dynamics unconsidered.

#### Limitations and Gaps in the Research

This research study is limited in several ways. First, the sample is only of two classes making up two grades at one school during one year. This is a small sample size that could be anomalous and is representative of the programs run at one school in particular. It does, however, provide a valuable example of one school with an established outdoor education program. Because the research is only at this one school, however, the research is limited in regard to student backgrounds and demographics. Experiences of other students at other schools and with other outdoor program providers could show different outcomes in regards to both changes in confidence and the importance of the different components in that change in confidence.

As an example, students at Arbor school rated their group balance highly favorably. If the faculty did not take the same care to choose student groups, group-building activities may not have had the same hold and this component may have had a very different effect on the students and have changed the outcomes. It would be of further interest to look at the programs used by a variety of other schools for the middle grades and perform the same sub-analysis of outdoor education components for those schools to uncover how the components play out in other situations while honoring the unique experiences of the students.

Additionally, it is always possible that a particularly bad day or good day for a student would effect how they viewed themselves when taking the survey, thus skewing the results for that individual. However, both classes did have similar patterns for increased confidence on their surveys.

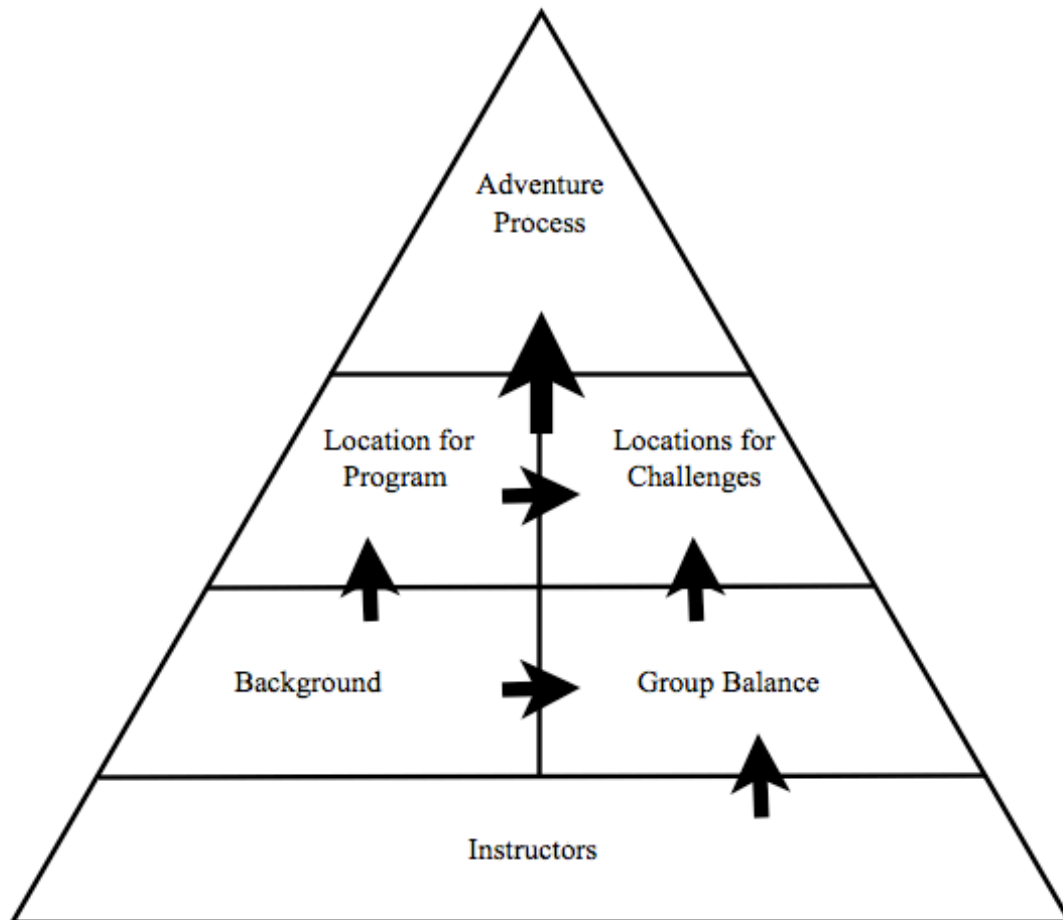
#### Implications for Future Research

*A New Model.* All in all, the findings in this study have demonstrated that when some components of outdoor adventure education are strong, stronger correlations between the other components and whether outcomes are positive or negative can be seen. While each component is important, the findings indicate that it may be harder to find the best practices for the adventure process component than for other components. This study supports challenge to be a very individual process, but that decisions can be made by instructors to encourage positive outcomes for the group as a whole by ensuring appropriate locations and group balance given the backgrounds of the participating students. These components can directly influence the success of the adventure process by ensuring a solid foundation for the students that challenge can then be built upon, much as

with the bricks in a pyramid, leading to the point of the experience. This is a change from the Outward Bound Model, which is linear in nature.

While the Outward Bound model is good for demonstrating the process that a participant goes through, the components are entirely interconnected. A pyramidal model, however, would show how the components of outdoor education build upon each other, culminating in the adventure process itself. Solid components such as instructors and group balance are potentially integral to the success of the adventure process as important foundation elements, and thus the success (or failure) of the outdoor adventure program as a whole are built upon them. It would be of great interest to do further research using sub-analysis on the programs at other schools to confirm or expand a pyramidal model for the components of outdoor education, providing a new way to understand what goes on in the black box of outdoor education.

## Pyramidal Model for the Components of Outdoor Education for Positive Outcomes



In this new model, the use of best practices among instructors creates a foundation for making good choices about group balance and program locations dependent on the background of the participating students. Appropriate locations for the challenges flow out of this as instructors choose the specifics for the sub-groups in the program. Everything component then works to support the adventure process as the capstone of the outdoor adventure program.



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